The Australian and New Zealand Journal of Surgery

OCTOBER, 1947.

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Editorial Notices.

ALL articles submitted for publication in this journal must be typewritten and double or treble spacing should be used. Each article should conclude with a brief summary and statement of conclusions. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

Authors are requested to submit two typescript copies of all articles.

References to articles and books should be carefully checked. In a reference the following information should be given without any abbreviation: initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given, with full date in each instance.

When illustrations are required, good photographic prints on glossy gaslight paper should be submitted. Line drawings, charts, graphs and so forth should be drawn on thick white paper in indian ink. Authors who are not accustomed to prepare drawings of this kind, are invited to seek the advice of the Editor if they are in any doubt as to the correct procedure. Skiagrams can be reproduced satisfactorily only if good prints or negatives are available.

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Business communications and remittances should be addressed to Butterworth and Co. (Australia) Ltd., 6-8 O'Connell Street, Sydney.

INTERNATIONAL SHORT-WAVE CONGRESS, AMSTERDAM.

The International Short-Wave Congress will be held in Amsterdam from July 19 to 24, 1948. The congress is being held under the direction of the following board: Dr. W. Beaumont, London; Dr. A. Gjertz, Stockholm; Professor Dr. C. Guarini, Naples; Professor Dr. D. Kobak, Chicago; Professor Dr. W. Kowarschik, Vienna; Dr. P. Liebesny, New York; Dr. J. Meyer, Paris; Dr. L. Rosa, Budapest; Dr. J. Saidman, Paris; Dr. J. Samuels, Amsterdam; Professor Dr. F. Scheminzky, Innsbruck; Professor Dr. E. Schliephake, Würzburg.

Those intending to attend the congress are asked to communicate immediately with the secretary, Dr. J. Samuels, whose address is Weteringschans 73, Amsterdam.

The announcements appearing in this journal contribute largely towards the maintenance of the high standard of the publication. It is, therefore, requested that, wherever possible, readers will support the business houses whose advertisements appear in the journal and that, when placing their orders, they will mention THE AUSTRALIAN AND NEW ZEALAND JOURNAL OF SURGERY.

THE AUSTRALIAN AND NEW ZEALAND JOURNAL OF SURGERY

Registered at the General Post Office, Melbourne, for transmission by post as a periodical.

VOL. XVII. OCTOBER, 1947. No. 2.

THE GEORGE ADLINGTON SYME ORATION.

THE DEBT OF SURGICAL SCIENCE TO AUSTRALASIA.[1]

By SIR GORDON GORDON-TAYLOR,
London.

THE selection of a subject for this Syme Oration has been determined partly by my deep admiration, may I say my affection, for the surgeons of Australia and New Zealand, partly by my desire to remind you of some of the notable contributions which Australasia has made to surgical science and to offer my "laurel for tribute and rosemary for remembrance" to the great surgeons and biologists, true son or sojourner, in the lands under the Southern Cross, whose genius and whose industry have placed your countries in the forefront of our calling.

The vista of surgical advance and achievement along which you of the Southern Hemisphere have progressed and which in retrospect stretches far back into the past, is indeed colourful and carpeted with many blooms, but the time at my disposal is too brief to permit the consideration of all in your lands who have laboured to promote surgical science, and my selection must be limited and may indeed be capricious; those who have done aught to forge a link between Australia or New Zealand and the Royal College of Surgeons of England have of course been readily included. I have not differentiated between the true Australian or New Zealander and the sojourner in the south; the scientific activities of many have been pursued in both hemispheres. It may be thought that I have dwelt inordinately upon the contributions of Australasia to anatomy, but I was myself primarily an anatomist and I have taught anatomy intermittently for nearly half a century.

In the performance of my task I may be accused of having strayed from the consideration and contemplation of surgical science as we know it today. British surgeons of a previous century were many of them profoundly versed in the problems of natural history, geology, palæontology *et cetera*; men like John Hunter turned to comparative anatomy, embryology and those "medals of creation", as he termed fossils, in an endeavour to elucidate problems which concerned the human frame. Sir Charles Bell, great "Middlesex" surgeon and anatomist, joined with Brougham in annotating Paley's "Natural Theology"; John Whittaker Hulke, a later Middlesex Hospital surgeon, was president of the Geological Society in 1882 and president of

[1] Accepted for publication on June 12, 1947.

the Royal College of Surgeons a decade later (1893-1895); the catholic interests of that great surgeon Sir John Bland-Sutton in the biological world are known to even the younger generation of surgical operators.

The vast accessions to the store of surgical knowledge, of which no one man now can be complete master, and the headlong speed of modern life doubtless remind the surgeon of today that for him "the proper study of mankind is man", but my survey this evening goes back to the earliest years of British settlement in your southern lands, when new zoological and botanical forms presented themselves to the eager and astounded gaze of the pioneer surgeons, when ships with naturalists aboard hopefully visited your shores, and when scientists at home breathlessly awaited, nay demanded, material from hitherto untrodden lands. Some of those whom I shall mention by reason of their widespread interests and their liberal outlook belonged to a class that was able by reason of its century and environment to subscribe to the more generous Terentian formula: *"Humani nihil a me alienum puto."*

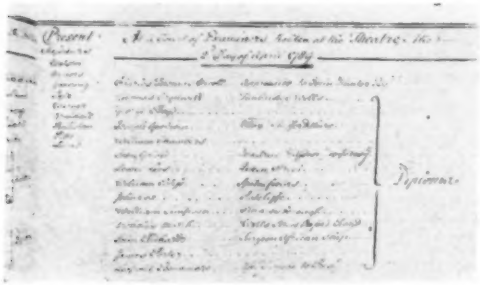


FIGURE IA. Company of Surgeons of London. Court of Examiners. Examination Book. Extracts showing entries referring to examinations of George Bass for membership diploma, April 2, 1789.

My address does not purport to be a history of Australasia or any affair of dates when conjecture credits the European eye to have first gazed, perhaps from afar, upon the various parts of your lengthy shore-line, nor is this an occasion to recount and recall the numerous expeditions to the southern hemisphere, or to tell the story of the men who led them. The naval surgeons even in those times did not always receive the credit for their control of the "calamity of sailors", as scurvy was termed, or any applause for a low mortality in the ships. Captain Cook and Sir Joseph Banks got the kudos for the happy state of affairs in the *Endeavour*, while the names of Monkhouse and Perry would have been forgotten or remained for ever unknown to many had it not been for the publications of your own Norman Dunlop.[3]

FIGURE IB. Company of Surgeons of London. Court of Examiners. Examination Book. Extracts showing entries referring to examinations of George Bass for qualification as a naval surgeon, July 1, 1790.

It is difficult to refrain from a reference to Surgeon George Bass[4] (1763-1808), who sailed from Plymouth with Governor Hunter in His Majesty's Ship *Reliance* on February 15, 1795; his reputation doubtless rests on his work as an explorer and a navigator rather than as a surgeon, and his name is perpetuated in the geography of the world (Figures IA and IB).

It was not to be expected that early surgeons-general to the settlement in New South Wales, like John White, Balmain, Jamison, D'Arcy Wentworth or Bowman,[3] could effect any vast advancement of surgical science, though White sent back biological material to England, even to John Hunter himself. William Redfern and Bland had both a connexion of doubtful repute with the Royal Navy; Redfern, who had passed the examination of the Corporation of Surgeons in London, but did not possess its diploma, in 1808 became the first Australian graduate; Bland in 1832 became the seventh surgeon in history to ligate the innominate artery for subclavian aneurysm. Alas, the patient succumbed eighteen days after operation, despite fifteen bleedings and the removal of eight pints of blood from his veins.[2]

There was another indirect Hunterian contact with Australia, for Sir James Palmer, who practised medicine and resided in Golden Square, London, had already, in 1837, edited the works of John Hunter in four volumes before leaving England; in less than ten years Palmer had become Mayor of Melbourne and laid the foundation stone of the Melbourne Hospital.

It is not without interest that E. S. P. Bedford, of Hobart (F.R.C.S., 1854), a generous contributor of biological material to Lincoln's Inn Fields, was the first Australian to be elected a Fellow of the College.[1]

JOHN HUNTER AND AUSTRALASIA.

Probably the specimens of the beautiful red-piped coral (*Tubipora musica* Linn.) from the coast of Australia, now destroyed by enemy action, came to Hunter from Sir Joseph Banks; and Banks had doubtless at least supplied Hunter with the Linnæan name of the Australian lizard *Lacerta gecko*, and perhaps the Australian reptile gally-wasp also came from this same donor. Owen tells us in his "Essays and Observations"[2] that the only parts of *Macropus major* brought home by surgeons or naturalists at first were some skulls and skins. "I was favoured with one of the skulls from Sir Joseph Banks" (Hunter[4]). Alas, this historic skull of *Macropus* was destroyed in the disaster of 1941.

John White (1750-1832), first surgeon-general to the new settlement at Port Jackson (Figure II), took considerable interest in the animals of New South Wales, and Dr. Shaw, who superintended the publication of White's zoological appendix to the "Journal of a Voyage to New South Wales", uses these words of him: "the nondescript animals of New South Wales occupied a great deal of Mr. White's attention, and he preserved several of them in spirits etc." The skull of *Viverrina dasyurus*, the original specimen described by Hunter, was sent home by White; this historic specimen also perished in 1941. An Australian lizard, *Cyclodus*, was also sent to Hunter by the same donor.

Hunter had certainly dissected two small mammary fœtuses of the kangaroo, possibly from White, for the special purpose of showing the relationship of the larynx to the posterior nares. Specimens numbers 3731, 3734, and 3735 of the former physiological series in the Hunterian Museum were sufficient evidence that Hunter had anticipated the anatomical discussions which were subsequently to take place on the kangaroo embryo; he found the epiglottis and arytenoids elongated and the *rima glottidis* situated at the apex of a cone-shaped larynx which projected, as in the Cetacea, into the posterior nares, where it was closely embraced by the mucosa of the soft palate.

[1] Arthur Martin a'Beckett (F.R.C.S., 1855) was the first Fellow in New South Wales and Charles Nathan (F.R.C.S., 1857) the second.

White's services to natural history[2] are commemorated in zoological nomenclature and a lizard, *Egernia whitei*, and a fish, *Hippocampus whitei*, bear the name of one who was stationed in Port Jackson from 1788 to 1794.

Not many years elapsed from the early settlement in New South Wales before John Hunter died. He had for some years before his death been investigating the problem of generation in marsupials and had kept American opossums for breeding purposes. The experiment, however, was a failure,

FIGURE II. George White, the first surgeon-general in the newly founded colony, New South Wales. White is the central figure. (From an illustration by an unknown artist in the possession of the Natural History Section, British Museum. Reproduced by kind permission of its council.)

and he approached a Captain Paterson and Mr. Lang, a surgeon, requesting that they would procure for him the female organs of the kangaroo; but I can find no record of any material response to his appeal.[3]

RICHARD OWEN (1804-1892) AND AUSTRALASIA.

Some intimacy with Owen's abundant manuscript and printed papers housed within the precincts of the Royal College of Surgeons of England, where he worked for twenty-nine years, an acquaintance with the Owen Collection of Letters at South Kensington and an admiration almost amounting to veneration for the vast knowledge of this omniscient naturalist-giant, who like a Colossus bestrode scientific Britain through half the nineteenth century, have contributed towards making the erstwhile conservator of the Hunterian Museum a somewhat dominant figure in this oration. But in the mere mention of Owen's name there exists an almost inevitable implication of Australian and New Zealand effort, for his time marked the high tide of the collection and transportation homewards of marsupial and other carcasses and of the bones of recent and extinct animals from your lands, with their recently discovered biological and palæontological stores (Figures III and IV).

In 1831, by which time Owen was assistant to Clift (Figure V), when Part iii of the "Catalogue of the Contents of the Museum" of the Royal

College of Surgeons was printed, "comprehending the Human and Comparative Osteology" (printed by Francis Warr, London), there was plenty of marsupial and monotreme (Figure VI) osteological material available. This included *Ornithorhynchus* (575-577), *Dasyurus* (458-462), *Phalangista* (463-467), *Petaurista* (468), kangaroo (*Kangurus labiatus*) (469-482), koala (*Phascolarctos fuscus*, New Holland sloth) (483-485), wombat (486-488). Australia was at that time a storehouse of material waiting to be uncovered, collected,

FIGURE III. Richard Owen (1804-1888), F.R.S., 1834, Hunterian Professor, 1836-1855. From the engraving by Dr. Bogue, about 1840. (From the Royal College of Surgeons collection of engravings *et cetera*.)

winnowed and catalogued. Henceforth Owen was to be the great pivotal figure on whom scientific activities in the distant southern hemisphere and elsewhere for many decades largely hinged. He has been assailed by his critics with charges of undue acerbity in controversy (Figure VII), and some of his replies to those scientists who ventured to cross swords with him, for example, on palæontological odontology, did not lack vigour, but he remained an unfailing source of encouragement to the amateur and professional naturalist in Australia and New Zealand, and a veritable lodestone attracting to himself not only the material, but also the donors.

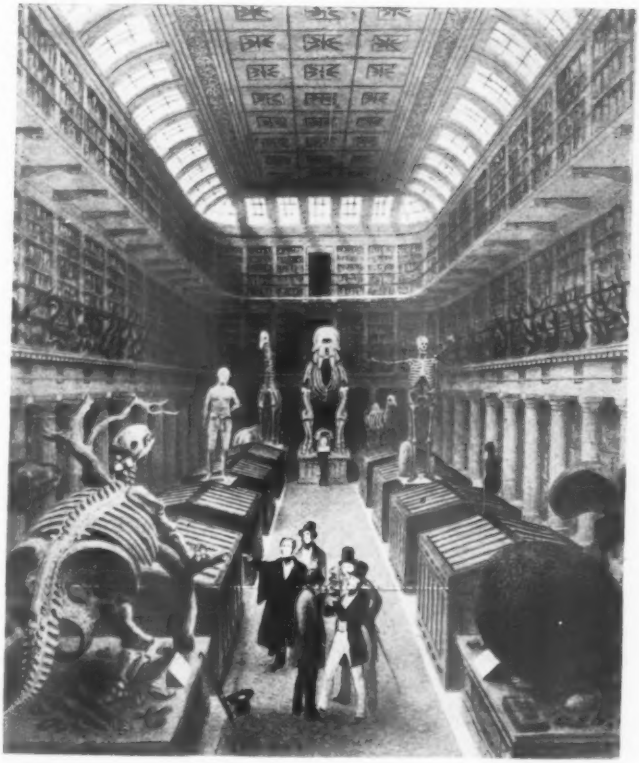


FIGURE IV. Royal College of Surgeons Museum. Water-colour drawing of Room III (mid-XIX century) by T. H. Shepherd. Presented to the college by Cecil A. Joll, F.R.C.S., June, 1943.

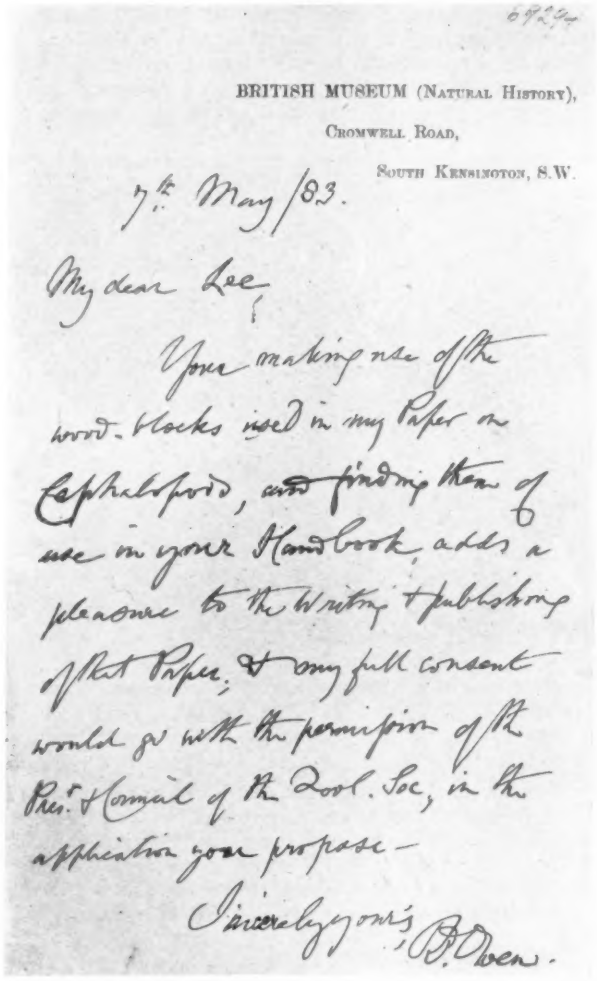
The perusal of the originals in the Owen Col-

FIGURE V. "A little gentleman with a load of business on his hands." Underneath in Owen's writing there is added: "Undutiful sketch by W. H. Clift of his father, William Clift, taking in subjects for Sir Charles Bell's lecture.". (From the Owen Collection of Letters, and by kind permission of the Council of the British Museum, Natural History Section.)

lection of Letters in the library of the Natural History Department, British Museum, for which courtesy I am deeply indebted to its council and to the librarian, Mr. A. Cockburn Townsend, reveals the unvarying gratitude of Owen to those distant workers and collectors, the punctilious courtesy with which in his own handwriting he answered their communications, in return dispatched

FIGURE VI. O'Brien, the Irish Giant. (Height when living, eight feet three inches.) Drawing by Rowlandson. Skeleton now in Royal College of Surgeons.

scientific memoirs abroad to them and often secured some titular recognition of their labours by learned scientific societies. Like Atlas, he stood firm and proud under the fierce torrent of specimens or relics which descended on his not unwilling shoulders from every country and clime, and the seven hundred scientific contributions of which he was the author attest his dynamic energy and zeal.



BRITISH MUSEUM (NATURAL HISTORY),
CROMWELL ROAD,
SOUTH KENSINGTON, S.W.

7th May 83.

My dear Lee,

Your making use of the wood-blocks used in my Paper on Cephalopoda, and finding them of use in your Handbook, adds a pleasure to the Writing & publishing of that Paper, & my full consent would go with the permission of the Pres.t & Council of the Zool. Soc, in the application you propose —

Sincerely yours, R. Owen.

FIGURE VII. Facsimile of letter in Owen collection, exhibiting not acerbity, but great courtesy. (By kindness of the Council of the British Museum, Natural History Section.)

The difficulties of exchange of information a century ago between scientific workers at remote distances from each other are difficult to realize in days when the aeroplane has annihilated time and space, and one letter of Owen to the Rev. W. Colenso in New Zealand, written on October 23, 1843, only reached the recipient on January 16, 1846, via Wellington. Owen may possibly have been importunate at times in begging for material, for Colenso, replying from Waitangi, Hawkes Bay, New Zealand, in January, 1846, wrote: "Since which I have sent you [Owen] on two or more occasions through Sir William Hooker such bones as I had beside me—*even all that I had.*" However, Colenso's readiness to supply Owen's needs did not abate, and the missionary sent him, for example, on January 22, 1851, specimens of a New Zealand rat and a New Zealand bat.

Colenso (Figure VIII) was not a mere *ramasseur de coquilles* for others, but was a contributor himself; he published a memoir on *Dinornis* in the *Tasmanian Journal*, Volume vii, 1843, and this memoir was reprinted in the *Annals of Natural History*, August, 1844.

The Owen correspondence relating to New Zealand missionary and other workers belongs particularly to the 1840-1850 period, but there are to be found letters in every decade which refer to Australasian naturalists and their gifts. The missionary successors of that Samuel Marsden, who in 1814 commenced the early colonization of New Zealand in the Bay of Islands, are not undeserving of our remembrance in the long saga of those who have added in some fashion to our understanding of Nature's secrets or who have contributed to the rising pyramid of fresh and new-won knowledge. These "labourers in God's vineyard" were also possessed of an enthusiasm and

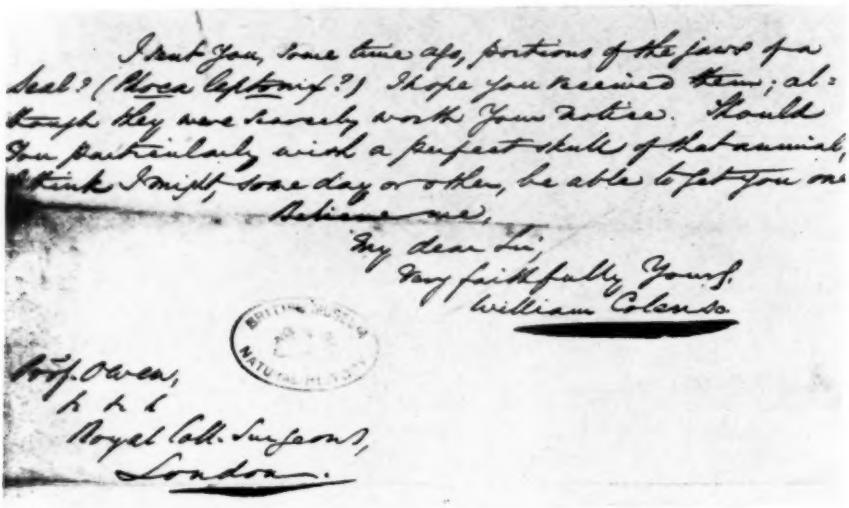

I sent You, some time ago, portions of the jaws of a
Seal? (Phoca Leptonyx?) I hope you received them; al-
though they were scarcely worth Your notice. Should
You particularly wish a perfect skull of that animal,
I think I might, some day or other, be able to get You one
Believe me,
My dear Sir,
Very faithfully Yours,
William Colenso.
Prof. Owen,
&c &c &c
Royal Coll. Surgeons,
London.

FIGURE VIII. Facsimile of letter from the Reverend William Colenso, a generous contributor of fossil and zoological material to Owen. (By courtesy of the Council of the British Museum, Natural History Section.)

energy which disinterred, assembled and transmitted to scientific authority at home the bones of extinct birds like the moa (*Dinornis* or *Palapteryx struthioides*). It was not unnatural for that great geologist and mineralogist Dean Buckland to enjoy some priority as a recipient of the fruits of the toil of his colleagues of the Church in their self-appointed task of osteological investigation, but to Richard Owen, the Duke of Argyll and others collections of specimens were also relayed.

Dinornis.

Owen's first interest in *Dinornis*[(2)] was shown while he was still assistant conservator of the Hunterian Museum, in a communication read on November 12, 1839, entitled: "Notice of a Fragment of the Femur of a Gigantic Bird of New Zealand".[(3)] This fragment was placed in Owen's hands by a certain Mr. Rule, with the statement that it had been found in the island of New Zealand, where the natives were said to have a tradition that the bone belonged to an extinct bird of the eagle kind. Own remarks that "the bird seemed to be a heavier and more sluggish species than the ostrich".

From the correspondence we can obtain information as to the various localities in New Zealand where the bones of *Dinornis* were first discovered, although over thirty years after this decade of intense and zealous collectors'

activity, Owen in 1879 lightened the labours of the inquirer by including a geological map of New Zealand that showed the localities from which the fossils had been obtained, in the two-volume work "Memoirs on the Extinct Wingless Birds of New Zealand", with an appendix on those of England, Australia, Newfoundland, Mauritius and Rodriques.

In the letters in the Owen collection one may read that the Reverend (later Archdeacon) W. Williams's collections of bones came from near his missionary station at the East Cape, Bay of Islands; the Reverend W. C. Cotton, M.A., wrote from Waimate, near the Bay of Islands; the Reverend Dr. Gillies sent Owen bones from a place fifty miles north of Christchurch; the Reverend W. Colenso sent material from Waitangi, Hawkes Bay; the Reverend Richard Taylor, of Wanganui, possessed a large collection of bones found in a river between Wanganui and New Plymouth, and communicated with Owen in 1843 through Captain Sir Everard Home, Bt., R.N. Archdeacon Williams wrote to Dean Buckland that, according to an American, the bird was still in existence in the neighbourhood of Cloudy Bay, in Cook's Strait. The Reverend (later Archdeacon) W. Williams, writing to Dean Buckland on February 28, 1842, tells him that the native name "moa" for *Dinornis* is pronounced "moor", that the bird was probably long-lived and existed in New Zealand at no very distant period of time, although not in the memory of any inhabitant, and that the greatest height of the bird was not less than 14 to 16 feet. Swainson, the naturalist, obtained his specimens in the North Island, probably in the vicinity of the Bay of Islands; the specimen of *Dinornis* found by Governor Sir George Grey was in a cave between the river Waikato and the Mount Tongariro in the North Island.

FIGURE IX. *Apteryx australis*. From Owen's memoir on Myology of *Apteryx*.

The first evidence of *Dinornis crassus* emanates from a deposit at Waikewaite in the "Middle Island" (Earl's series), and the richer "find" of Walter Mantell was from the vicinity of Oamaru Point.[6] It would appear, therefore, that *Dinornis* was pretty generally distributed over New Zealand. Others who provided Owen with specimens of *Dinornis* were Dr. Mackellar and the Honourable William Martin, Chief Justice, New Zealand; it is not without interest to a former naval officer like myself that Dr. Richardson, of Haslar Hospital, furnished Owen with three specimens.

Apteryx Australis.

It would be impertinent in this audience to say much on the *Apteryx* (Figure IX). Owen's memoir on *Apteryx*[7] appeared in the *Transactions of the Zoological Society*, 1843; the specimens for his dissections he received from the "Earl of Derby, President, and Mr. George Bennett, FLS, Sydney, Corresponding Fellow of the Zoological Society". The illustrations (Figures

VIII, XIIA and XIIB) are from the second portion of Owen's memoir dealing with the myology of *Apteryx*; Figure XIIA shows the corrections in the proof and dated Dec. 23/43 with Owen's handwriting; Figure XIIB is the final form and is inscribed with Goodsir's name.

In the Owen Collection of Letters there is one from the Reverend W. Colenso, who told Owen that when he was resident in the northern parts of the island (New Zealand) it was not difficult to obtain an *Apteryx* (Figure X) and that on one occasion a native brought him seven at the same time.

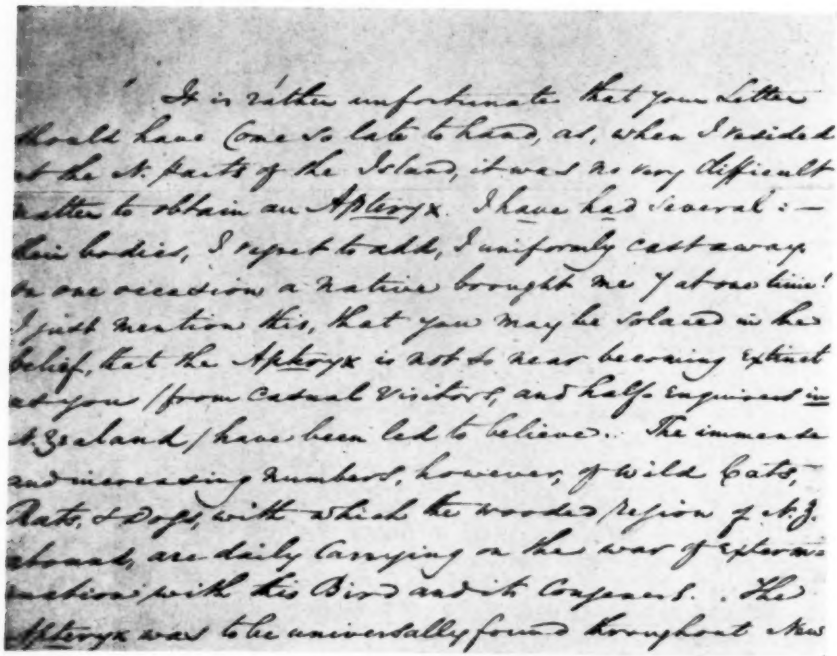
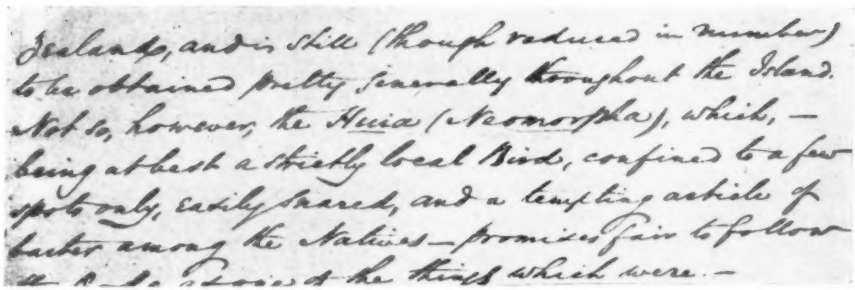


FIGURE X. Facsimile of letter from the Reverend W. Colenso to Owen from Waitangi, Hawkes Bay, New Zealand, January 20, 1846, referring to *Apteryx* (Owen Collection of Letters).

Colenso adds that the huia (*Neomorpha*) is confined to a few spots in New Zealand, is easily snared, a tempting article of barter among the natives, and promises to become "as extinct as the Dodo" (Figure XI).

The letters also refer to a specimen sent by "the lamented botanist, Mr. Cunningham, and from Sir John Franklin he got one Apteryx skin". Owen's interest in *Apteryx* never deserted him: in 1852 he was writing on "The Eggs and Young of the Apteryx and on the Casts of the Eggs and Certain Bones of Aepyornis recently transmitted to the Zoological Society of London".[8] He points out how the New Zealand birds afford instructive examples of the progressive loss of the volant faculty, with concomitant modifications of the parts of the skeleton giving origin to the pectoral muscles. The keel progressively shrinks from *Porphyrio* to *Tribonyx*, thence to *Notornis, Aptornis, Stringops, Apteryx, Dinornis*. Almost his last communication in 1885 dealt with the heart of *Apteryx* and *Ornithorhynchus*.[9]

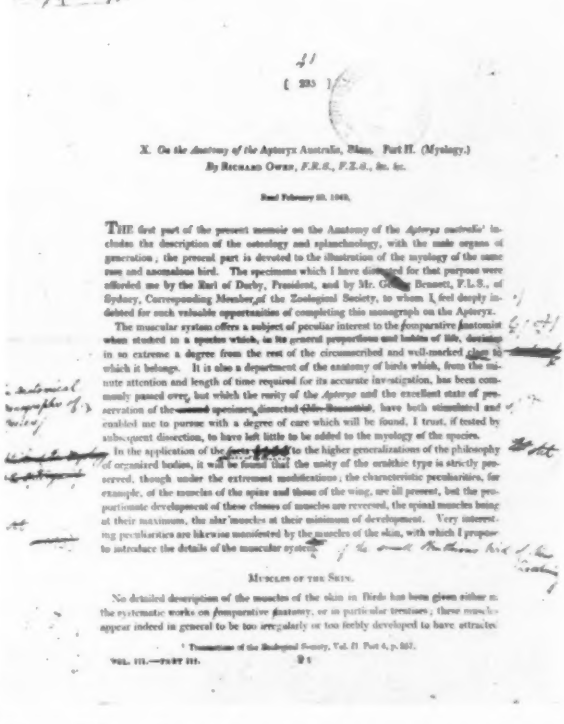


New Zealand, and is still (though reduced in number) to be obtained pretty generally throughout the Island. Not so, however, the Huia (Neomorpha), which, — being at best a strictly local Bird, confined to a few spots only, easily search, and a tempting article of barter among the Natives — promises fair to follow in the steps of the Moas & other Birds which were. —

FIGURE XI. Facsimile of letter from the Reverend W. Colenso to Owen, referring to the probable extinction of the Huia. From the Owen Collection of Letters. (By courtesy of the Council of the British Museum, Natural History Section.)

It is impossible to do more than refer to those activities and publications of Owen's that concern the southern hemisphere, but perhaps his paper to the Royal Society on October 31, 1836, on the "Structure of the Brain in Marsupial Animals",[10] "was one of the most monumental in his long career and constituted a landmark in the history of cerebral morphology". Owen's generalizations[11] on the *corpus callosum* were later fiercely attacked by Flower, who succeeded him at the Royal College of Surgeons, and less overtly by Huxley; but the truth of the statements of the older curator in reference to this commissure was attested by the investigations of Elliot Smith and others and is acknowledged by all today.

Owen's interests were catholic in scope. He first dissected *Macropus bennettii* in 1845,[12] he wrote on the anatomy of the tree-kangaroo (*Dendrolagus inustus* Gould)[13] in 1850, and made a communication to the *Philosophical Transactions*, 1859, on the test teeth of *Thylacoleo*. On March 23, 1864, he got two Thylacines from Dr. J. Grant, of Launceston, Tasmania (Figure XIII), and among the correspondence there is a note



[235]

X. *On the Anatomy of the Apteryx Australis, Shaw.* Part II. (Myology.)

By RICHARD OWEN, *F.R.S., F.L.S., &c. &c.*

Read February 10, 1840.

THE first part of the present memoir on the Anatomy of the *Apteryx australis* includes the description of the osteology and splanchnology, with the male organs of generation; the present part is devoted to the illustration of the myology of the same rare and anomalous bird. The specimens which I have dissected for that purpose were afforded me by the Earl of Derby, President, and by Mr. G[illegible] Bennett, F.L.S., of Sydney, Corresponding Member of the Zoological Society, to whom I feel deeply indebted for such valuable opportunities of completing this monograph on the Apteryx.

The muscular system offers a subject of peculiar interest to the comparative anatomist when studied in a species which, in its general proportions and habits of life, deviates in so extreme a degree from the rest of the circumscribed and well-marked class to which it belongs. It is also a department of the anatomy of birds which, from the minute attention and length of time required for its accurate investigation, has been commonly passed over, but which the rarity of the *Apteryx* and the excellent state of preservation of the [illegible] specimens dissected [illegible], have both stimulated and enabled me to pursue with a degree of care which will be found, I trust, if tested by subsequent dissection, to have left little to be added to the myology of the species.

In the application of the facts [illegible] to the higher generalizations of the philosophy of organized bodies, it will be found that the unity of the ornithic type is strictly preserved, though under the extremest modifications; the characteristic peculiarities, for example, of the muscles of the spine and those of the wing, are all present, but the proportionate development of these classes of muscles are reversed, the spinal muscles being at their maximum, the alar muscles at their minimum of development. Very interesting peculiarities are likewise manifested by the muscles of the skin, with which I propose to introduce the details of the muscular system.

MUSCLES OF THE SKIN.

No detailed description of the muscles of the skin in birds has been given either in the systematic works on comparative anatomy, or in particular treatises; these muscles appear indeed in general to be too irregularly or too feebly developed to have attracted

[illegible] Transactions of the Zoological Society, Vol. II. Part 4, p. 247.

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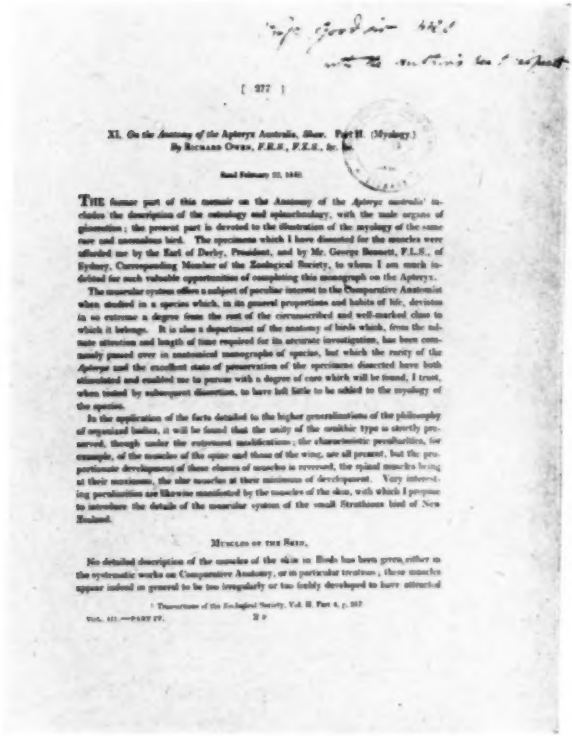
FIGURE XIIa. The proofs of Owen's memoir on *Apteryx australis*. The finished paper addressed to Goodsir. (From the Royal College of Surgeons' library.)

from his friend Sir Daniel Cooper, of 20 Prince's Gardens, Kensington, who writes, July 5, 1866, that a nephew, Edward Hill, was sending home "1 male platypus, 1 tin said to contain 2 female platypus, and 1 tin said to contain 1 female platypus and one porcupine (i.e. Echidna)". He received from Sir John Franklin some rare specimens from Van Diemen's Land; a collection of birds from Australia and Tasmania; "a fine Van Diemen's Land native skull with teeth beautiful".



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XI. On the *Anatomy of the Apteryx Australis*, *Shaw*. Part II. (Myology.)
By RICHARD OWEN, *F.R.S.*, *F.Z.S.*, &c. &c.

Read February 23, 1841.

THE former part of this memoir on the Anatomy of the *Apteryx australis* includes the description of the osteology and splanchnology, with the male organs of generation; the present part is devoted to the illustration of the myology of the same rare and anomalous bird. The specimens which I have dissected for the muscles were afforded me by the Earl of Derby, President, and by Mr. George Bennett, *F.L.S.*, of Sydney, Corresponding Member of the Zoological Society, to whom I am much indebted for such valuable opportunities of completing this monograph on the Apteryx.

The muscular system offers a subject of peculiar interest to the Comparative Anatomist when studied in a species which, in its general proportions and habits of life, deviates in so extreme a degree from the rest of the circumscribed and well-marked class to which it belongs. It is also a department of the anatomy of birds which, from the intimate attention and length of time required for its accurate investigation, has been commonly passed over in anatomical monographs of species, but which the rarity of the *Apteryx* and the excellent state of preservation of the specimens dissected here both stimulated and enabled me to pursue with a degree of care which will be found, I trust, when tested by subsequent dissection, to have left little to be added to the myology of the species.

In the application of the facts detailed to the higher generalizations of the philosophy of organized bodies, it will be found that the unity of the ornithic type is strictly preserved, though under the extremest modifications; the characteristic peculiarities, for example, of the muscles of the spine and those of the wing, are all present, but the proportionate development of these classes of muscles is reversed, the spinal muscles being at their maximum, the alar muscles at their minimum of development. Very interesting peculiarities are likewise manifested by the muscles of the skin, with which I propose to introduce the details of the muscular system of the small Struthious bird of New Zealand.

MUSCLES OF THE HEAD.

No detailed description of the muscles of the skin in Birds has been given, either in the systematic works on Comparative Anatomy, or in particular treatises; these muscles appear indeed in general to be too feebly developed to have attracted

[1] Transactions of the Zoological Society, Vol. II. Part 4, p. 257.

VOL. III.—PART IV. 2 F

FIGURE XIIB. The proofs of Owen's memoir on *Apteryx australis*. The finished paper addressed to Goodsir. (From the Royal College of Surgeons' library.)

Even when Owen had reached the three score years and ten of man's allotted span his industry and enthusiasm remained undiminished. These were the years of his special interest in the fossil remains of extinct animals; from 1870 to 1884, by which latter date he was eighty, papers from his pen flooded the *Philosophical Transactions of the Proceedings of the Royal Society* and the *Transactions of the Zoological Society*. These contributions especially concerned the fossil animals of Australia,[14][15] including special communications on the restoration of the extinct marsupial *Diprotodon australis* (1870)[16] (Figure XIV) and "a Cuvierian Principle of Palæontology tested by Evidence of an Extinct Leonine Marsupial (Thylacoleo Carnifex)" (1871).[17] It had been laid down by Cuvier in his immortal work of "Restoration of the Extinct Mammals of the Paris Basin": *"La prémière chose à faire dans l'étude d'un animal fossile est de réconnôitre la forme de ses dents molaires; on détermine par-là s'il est carnivore ou herbivore."*[30]

Owen had previously inferred from the size and position of the socket of the anterior tooth of *Thylacoleo*, from the structure of the root of the tooth therein implanted, and above all from the characters of the associated and completely preserved teeth that such a front tooth must have been "laniariform", that is, subcompressed and pointed, adapted for piercing, holding and lacerating like the canine of a carnivore. Another diprotodon jaw was sent him by W. K. Gipps, December 13, 1874, from Kirban, Mundooran, New South Wales.

His interest in *Dinornis* was unflagging; and the best specimen of all was found in Nelson Province in the South Island of New Zealand (1882).[18] He wrote on the sternum of *Notornis*;[19] in 1877 he had he had produced evidence of the genus *Dromornis* in Australia.[20] There were also descriptions of some remains of the gigantic land lizard (*Megalania prisca* Owen)[21] from Australia (1881); communiques on the evidence of a large extinct

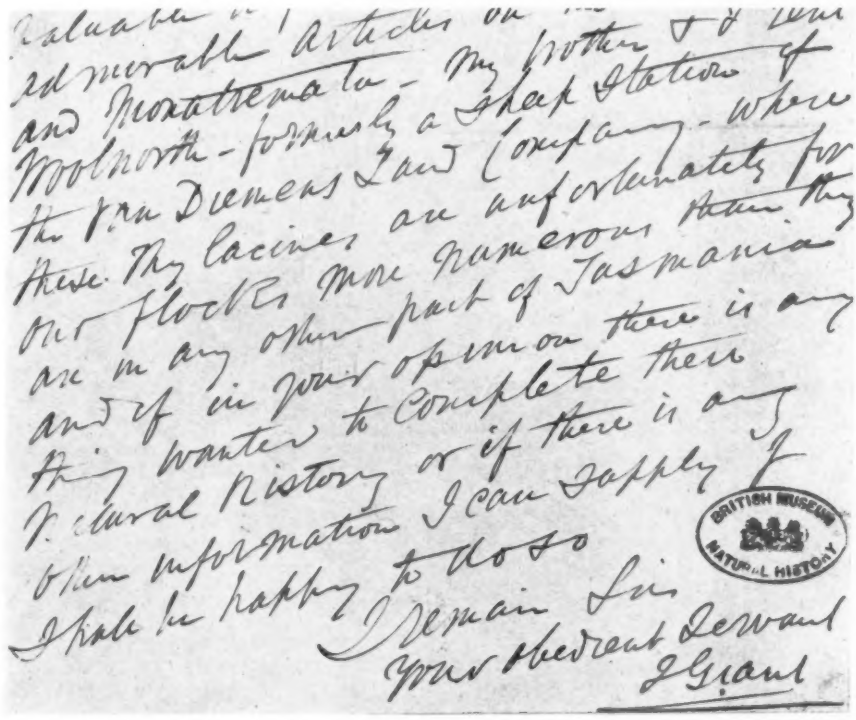

FIGURE XIII. Facsimile of letter of Dr. J. Grant, promising gift of Thylacines from Tasmania. (By courtesy of the British Museum.)

lizard[22] (*Notiosaurus dentatus*) from Pleistocene deposits, New South Wales (1880) and of a large extinct monotreme (*Echidna ramsayi*) found in the Wellington breccia cave, New South Wales (1884).[23]

It has been possible to refer only to Owen's contacts with Australasia: his life has been published in two volumes by a grandson. His huge correspondence still awaits an editor and publisher.

GEORGE BENNETT.

A link was forged between Australasia and the Royal College of Surgeons of England in 1834 (Figure XV), when George Bennett (1804-1893) received the Honorary Medal of the Royal College. The Honorary Medal was instituted under a by-law made in 1802. This is a gold medal, and the leading considerations in its award are "liberal acts or distinguished labours, researches and discoveries, eminently conducive to the improvement of natural knowledge and of the healing art". The Honorary Medal was awarded Bennett

for his discovery of the pearly nautilus in its living state in Dillon's Bay, Island of Erromango, New Hebrides Group. The animal part of the nautilus (Figure XVI) had first been described by Aristotle, but no further account

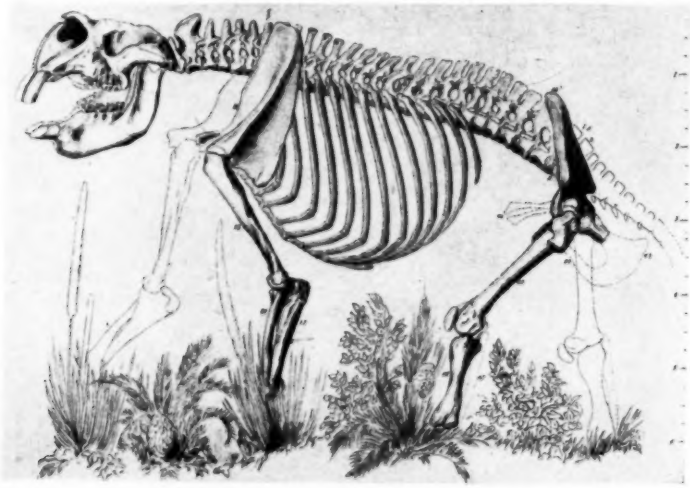

FIGURE XIV. The extinct marsupial, *Diprotodon australis*. (From the *Transactions of the Zoological Society.*)

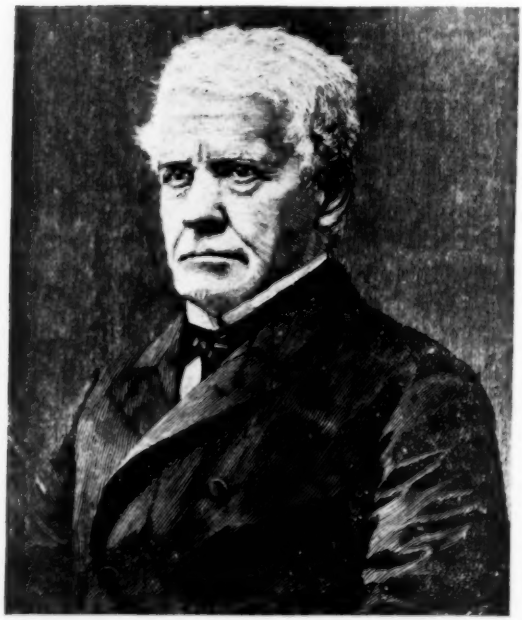

FIGURE XV. George Bennett (1804-1893) Honorary Medal, Royal College of Surgeons, 1834; elected Fellow of the Royal College of Surgeons, 1859.

appeared until the beginning of the eighteenth century, when Rumphius, a doctor-naturalist of Amboyna, published a description of the animal and its habits. The investigation of the specimen sent by Bennett to Owen led to the production of the famous memoir in 1832 which placed Owen in the front rank of comparative anatomists. Bennett himself writes of Owen thus:

> When Professor Owen received the prize I gave him he went to Paris to consult the best authorities and saw Cuvier; on asking the latter if he had ever seen the animal that inhabited the shell of the Pearly Nautilus, his words were simply these: "*Non, monsieur, je ne l'ai pas vu, et je ne le verrai jamais.*" The expression was prophetic, for when Professor Owen had completed his invaluable monograph and sealed up the copy that he wished to send to his great master, the news arrived that Cuvier was no more.

But Bennett's Honorary Medal was also the reward for a great gift of specimens from him to the Royal College of Surgeons. In the library of this institution there is preserved a note in Owen's own handwriting: "General account of specimens of comparative anatomy and natural history collected and presented to the Museum of the Royal College of Surgeons by George Bennett, Esq., M.R.C.S., F.L.S. etc."

The total number of specimens, including many invertebrate forms, was 510. They were collected since May, 1832, when Bennett left England, "taking with him two boxes with bottles provided by the College which were sent home full in the summer of 1833. The remainder have been presented at Mr. Bennett's expense and deposited since his return in the Museum of the College" (Owen).

"From the rarity and good state of preservation adapted for anatomical investigations and preparations of all kinds, these specimens are intrinsically of great value; but this is much increased by the copious and accurate observations on the locality, temperature, time of the day and other circumstances connected with their capture" (Owen).

Figure XVI. Animal part of pearly nautilus. Discovered by Bennett in the New Hebrides. (From Owen's memoir.)

Owen specially mentions "Three unique specimens of the female organs of Ornithorhynchus paradoxus:" "these are in situ with the pelvis and marsupial bones". There was another "unique specimen": kangaroo (*Macropus major*)—impregnated uterus with fœtus and membranes.

The story of Bennett is not without interest to the writer, since Bennett, born in Plymouth, walked the wards of Middlesex Hospital and also studied at the famous Windmill Street School (Figure XVIIa), where his masters were Charles Bell and Herbert Mayo (of "Middlesex") and Caesar Hawkins (the Saint George's Hospital surgeon).

His name is liberally perpetuated in botanical, zoological and palæontological nomenclature: thus *Wallabia bennettii* (the common large wallaby of Tasmania), *Dendrolagus bennettianus* (Bennett's tree-kangaroo), *Casuarius bennettii* (New Britain cassowary or mooruk), *Gindalia bennettii* (a small dragon lizard). Owen also honoured his friend by naming two palæontological specimens after him: *Diprotodon bennettii* (from Manduna, New South Wales) and *Chlamydosaurus bennettii* (from Gowrie, Station, New South Wales).

Bennett's naturalist interests continued undiminished; in December, 1857, Gould laid before the Zoological Society Bennett's first communication to him of a new species of cassowary (mooruk) (Figure XVIIb) from the island of New Britain, which Gould named *Casuarius bennettii*; the unusual thickness of the bird's legs approximated to that of the moa, and Owen considered the new-found bird (*Casuarius bennettii*) and the cassowary

FIGURE XVIIA. The dissecting room. Drawing by T. Rowlandson (1756-1827). Small size portraits. On paper (eleven by sixteen inches). Presented to the Royal College of Surgeons by Dr. William Tiffin Iliffe. This picture is said to represent Dr. William Hunter demonstrating to the class in the dissecting room of the Great Windmill Street School. The following are the names of some of those present at the demonstration: Dr. Smollett, the figure on the right with an eyeglass; Dr. William Hunter, under the skylight, higher than the rest; Mr. Howison, removing the intestines; Mr. Hewson, dissecting the eye; Mr. Cruikshank, at extreme left above Mr. Howison. Amongst the others (it is believed) are Dr. William Pitcairn, Dr. Matthew Baillee, Mr. Howe, Mr. Sheldon, Mr. Camper *et cetera*. (From the description in Sir Frederic Hallett's catalogue of portraits in the Royal College of Surgeons, Revised Edition, 1930, page 16.)

FIGURE XVIIB. The mooruk (*Casuarius bennettii*) from Plate IV in "Gatherings of a Naturalist in Australasia", by George Bennett, M.D., F.L.S., F.Z.S., 1860.

(*Casuarius galeatus*) to be the most nearly allied living types of his genus *Palapteryx*. The Zoological Society's gardens in London were enriched by his presentation of three mooruks, the first one arriving in May, 1858, and the two young ones twelve months later. Bennett, who reached England ten days after the birds' arrival, had the satisfaction of seeing them. In 1860 he wrote of these birds: "a splendid adult male and two younger birds, where they live with the Ostrich, South American Rhea, Emu, Apteryx and Cassowary".

Bennett was an industrious writer. Some may remember his realistic description of the kangaroo and its pouch:[85]

I believe that it was Charles Lamb who said the peculiarity of the small forefeet of

the Kangaroo seemed to be for picking pockets; but he [Lamb] forgot to mention the singularity characterizing the animal Kingdom of Australia, that they have pockets to be picked, being mostly marsupial. We have often amused ourselves by throwing sugar or bread into the pouch of the Kangaroo, and seen with what delight the animal has picked its own pocket and devoured the contents, searching the bag, like the Highlander his sporran for more.

Perhaps the anatomists of Australia would search their sporrans once again for replacements of marsupial material for our museum in Lincoln's Inn Fields (Figures XVIII and XIX).

FIGURE XVIII. Royal College of Surgeons Museum, Room III, after air bombardment, May, 1941. The encased statue of John Hunter was found, when again displayed to view in 1945, to be unscathed.

At the time of his death, when he was almost ninety years of age, Bennett was the "Nestor of Australian naturalists". Though born in England and finally settling in Sydney, he retained his wanderlust, his love of nature and his industry as a writer. He had been made a Fellow of the Royal College of Surgeons on August 9, 1859, by election on the fifteen-year regulation, since between the charter of 1852 and the *Medical Act* of 1875 the qualification for election was fifteen, not twenty, years' membership. (Bennett had been M.R.C.S. since 1828.) He died in Sydney at 167 William Street in 1893.[1]

Bennett was the third recipient of the Honorary Medal of the College of Surgeons; the fourth was a Tasmanian, W. L. Crowther, who received the award in 1869. The list of honorary medallists is a distinguished one, and

[1] The connexion of Bennett with the Royal College of Surgeons of England has led to Bennett overshadowing those great naturalists Sir William John Macleay and W. A. Macleay in this account.

among the twenty-one awards are to be found the names of Richard Owen himself (1883), Erasmus Wilson (1884), Paget and Lister (1897), Elliot Smith (1930) and Alexander Fleming (1946). About 1868 or 1869 Crowther sent a valuable collection of specimens from Hobart Town to the Hunterian

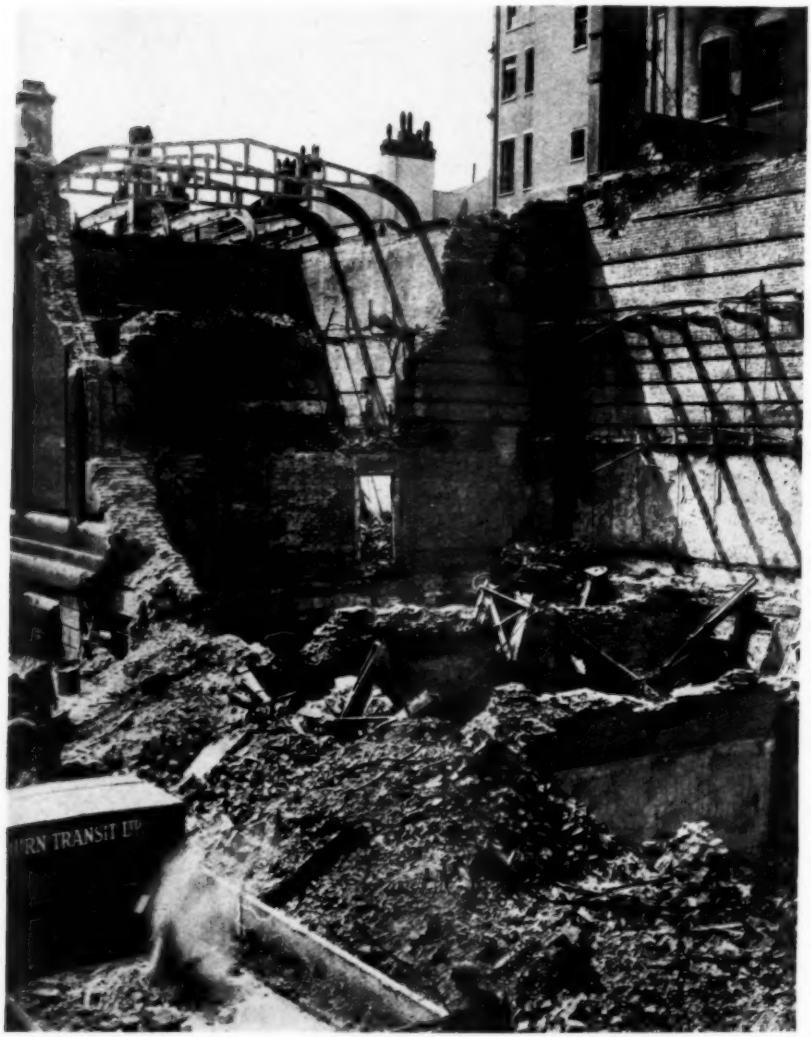

FIGURE XIX. Royal College of Surgeons Museum. The remains of Room V after air bombardment, May 5, 1941.

Museum, and the list in the library of the Royal College of Surgeons is in Flower's handwriting (Figure XX). The name of Crowther has been associated with Tasmania since 1825, when William Crowther came out in the *Cumberland*.

WILLIAM LODEWYK CROWTHER.

The following extract refers to the last-named's descendant, William Lodewyk Crowther, who was educated at Saint Thomas' Hospital and in Paris, later to become Honorary Medallist of the College, to be elected F.R.C.S. and to attain the dignity of Premier of Tasmania. He had obtained his Fellowship by election on the fifteen-year regulation on March 12, 1874; he had been a member since 1841.[120]

The following description of this Tasmanian doctor comes from Bartley's "Opals and Agates":

> Those were the times when Dr. William Lodewyk Crowther, of Hobart, was in his prime, and used to walk from the latter place to Oatlands (52 miles) in a day, shooting as he went, and we all know how many extra miles *that* includes; but, the summer day is long in Van Diemen's Land. His two pointers, "Sancho" and "Rascal", are visible (to my mind's eye) at this moment. All this was before he went to Paris to complete his medical studies, and contracted the awful typhus of that city, in the hospitals, a matter which weakened him ever afterwards, or, he had not died at 68, as the pedestal to his statue in the Hobart Town Gardens, tells us; for 68 is young for a Tasmanian to die at. It was on that trip home that he took his fine zoological collection, which the Earl of Derby, at Knowsley (the "Homer" Earl) purchased from him, including 50 guineas for a pair of Tasmanian "devils".

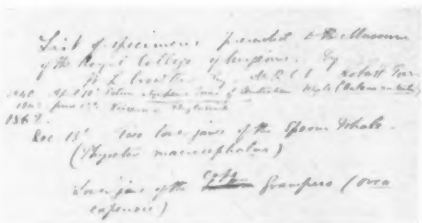

FIGURE XX. Royal College of Surgeons Museum. List of specimens presented by W. L. Crowther (manuscript in the hand of Sir William Flower). Royal College of Surgeons Library, 275, h. 6 (1).

A grandson of W. L. Crowther, W. E. L. H. Crowther, D.S.O., F.R.A.C.P., is the great medical historian of Tasmania, and has also furnished information about Edward Samuel Pickard Bedford,[121] M.R.C.S. March 15, 1823, and F.R.C.S. April, 1854, who died in 1875. The natural history of the marsupials attracted Bedford like so many young medical men in Australia, and there is a paper by him, "Observations on the Conditions of Young Marsupial Animals", in the *Transactions of the Tasmanian Society*, Volume i. This society was founded by Sir John Franklin, and at its meetings were men like Franklin, Hooker, John Gould (first of ornithologists), Ross, Crozier, Robert McCormack (of the *Erebus* and *Terror*) and others whose names were linked with the Antarctic seas.

Bedford built Saint Mary's Hospital, Hobart, and after removing to Sydney became one of the founders of the Royal Prince Alfred Hospital, in his anæsthetic days, and later became consulting surgeon to the Sydney Infirmary, Saint Vincent's Hospital *et cetera*.

Huxley[20] made this note in November, 1847: "The people of Van Diemen's Land were very hospitable. Our introduction (by Captain Stanley) to Dr. Bedford gave me some very agreeable acquaintances." At Hobart Town, Huxley saw for the first time an operation under ether.

Four complete Tasmanian skeletons and less than thirty skulls were sent to Britain by Morton Allport, of Hobart Town, two of the skeletons reaching the College of Surgeons Museum.

AUSTRALASIAN ANATOMISTS AND THE CONTRIBUTION OF AUSTRALASIA TO ANATOMICAL SCIENCE.

Archibald Watson. Among the great Australian anatomical teachers Archibald Watson comes first in chronological order, for he became Elder Professor of Anatomy in the University of Adelaide as far back as 1884

and occupied the chair until 1919. He had commenced the study of medicine relatively late, but Nature had determined that his valuable professional and academic life should not thereby be curtailed. The number and international character of his early academic degrees and diplomas rivalled those of a St. Clair Thomson or an Edward Douty. He commenced his teaching of anatomy in a bizarre dissecting room once situated in a London graveyard off Brunswick Square, with which men like Cooke of Westminster Hospital, Bland-Sutton, Watson himself and the writer were at various times associated.

Watson taught pathology and operative surgery as well as anatomy, and the considerable extent of his influence on surgery in Australia is difficult to estimate accurately; he was a citizen of the world, a man of mankind. Circumstances dictating a temporary transference of his activities from Adelaide to Melbourne widened the spehere of the influence with which he swayed young surgical operators. He had a passion for tissue-planes, and Dunhill himself has acknowledged his indebtedness in goitre work to what he learned about the anatomical planes of the neck from this old pioneer. Watson's profound knowledge of anatomical detail constantly suggested novel bloodless methods of approach to deeper structures; in his passion for the preservation of tissues he would even denounce the sacrifice of a small subcutaneous vein. He drew the attention of his eager pupils to bloodless methods of mobilizing the colon long before Moynihan proclaimed to English admirers the "white line" of tissue cleavage and the surgical construction of a mesocolon for those parts of the large gut that were sessile and fixed.

A great deal of the early work on hydatid disease was done by Watson and found its way into the textbooks, but he lacked the operative dexterity of men like Alexander MacCormick and others of his generation. By the older vintage of Australian surgeons the name of Archibald Watson is cherished with an affection and veneration akin to that which Gowland, for example, enjoyed with successive years of students in the University of Otago.

Thomas Anderson Stuart and Alexander MacCormick. The contribution of Thomas Anderson Stuart and Alexander MacCormick towards our knowledge of the closure of the upper aperture of the larynx during deglutition and of the functions of the epiglottis renders the names of MacCormick and his patient Dyason as deserving of remembrance as those of Beaumont and Alexis St. Martin, well known in connexion with the story of the gastric juice. Dyason underwent six operations between April, 1888, and July, 1890, for a cancer of the lip and recurrences in the neck, and was finally cured with a large opening into the pharynx, the mucous membrane of the latter having been sutured to the skin. Through this opening clinical observations on the epiglottis were made.

It had previously been imagined that the superior aperture of the larynx was closed during deglutition by the folding back of the epiglottis: that, in fact, the epiglottis during the passage of a bolus of food was applied like a lid over the entrance to the vestibule of the larynx. The investigations of (Sir Thomas) Anderson Stuart, who enjoyed the cooperation of (Sir) James Barrett and Iredell, of Melbourne, demonstrated that during swallowing the epiglottis actually moves forward to be squeezed between the base of the tongue and the rest of the larynx, and that there are associated an apposition and forward projection of the two arytenoid cartilages, which are forced against the tubercle of the epiglottis. They demonstrated that swallowing is little affected by the loss of the epiglottis by disease, accident or experiment; even loss of the arytenoids by disease does not appear to cause necessarily difficulties in deglutition.

New functions have been attributed to the epiglottis since Anderson Stuart's time, especially by my colleague on the Council of the Royal College of Surgeons, Mr. V. E. Negus (1927). From prolonged studies on the comparative anatomy of the larynx Negus points out that the epiglottis seems to be unnecessary for phonation; thus the sea-lions and gibbons are poorly provided, and he suggests that it may be an accessory olfactory organ to aid macrosmatic animals, which rely on the powers of scent perhaps for their very existence. The efficiency of the epiglottis as an accessory olfactory organ is promoted by its size and an associated development of the soft palate, whereby in macrosmatics the air tract is continuous and complete from the anterior nares to the trachea and bronchial tree.

The name of Sir Edward Stirling (1848-1919) will always be associated with *Diprotodon,* the mammoth wombat, *Genyornis newtoni,* the rival of the moa, and the little *Notoryctes typhlops.*

J. T. Wilson. J. T. Wilson went from Edinburgh to Sydney under the ægis of Anderson Stuart in 1886. The following years veritably hummed with the activities of men of brilliant promise working in the Sydney school, such as Almroth Wright, Charles J. Martin, J. P. Hill, Elliot Smith, W. A. Haswell and E. Tidswell. In his turn "Jummy" Wilson also proved himself a great trainer of anatomists and his disciples at various times included Grafton Elliot Smith, the late John T. Hunter, A. N. Burkitt, R. A. Dart, J. S. Shellshear, G. H. Lightoller, and S. A. Smith of the Talgai skull.

The gross and histological anatomy of the nervous system appears to provide a special attraction for Australian anatomists. The researches of Grafton Elliot Smith on the *cortex cerebri* in the beginning of the century were epoch-making; his pupil Shellshear devoted himself with equal earnestness to the base of the brain and the peculiarities of its blood supply.

Sir Grafton Elliot Smith. Grafton Elliot Smith was a true-born son of New South Wales, having first seen the light at Grafton in 1871. In view of the close liaison which today cements Australasian surgery to the Royal College of Surgeons of England, it is not without interest that the library of the latter institution was one of the earliest places where Elliot Smith used to read when he reached England in 1896. It is also a tribute to the perspicacity of the museum committee of that period that the young Australian was accorded the privilege of assisting in the compilation of the second edition of the "Descriptive Catalogue" of the unrivalled collection of brains in the Hunterian Museum galleries. The magnificent honorarium of £100 was awarded him for this enormous undertaking, which took nearly three years to complete (Figure XXI).

Elliot Smith clinched forever the controversy regarding the existence of *corpus callosum* in the monotremes (Figure XXII) and marsupials (Figure XXIII), around which so much vitriolic ink had been spilt and vituperative expressions hurled between protagonists of rival anatomical views. He coined the name "neopallial" for the non-olfactory portion of the cerebral cortex in the marsupial brain, and studied the course of the neopallial commissural fibres running in the anterior (ventral) commissure. With the vision of genius he realized that the marsupial brain was devoid of possibilities of further elaboration and that the evolution of any higher type of brain necessitated a new route for these "neopallial" commissural fibres. Such a route must be non-destructive of "basal" architecture, and such a route Elliot Smith demonstrated as occurring in the fortunate endowment of the higher mammalian (Eutherian) brain. The *corpus callosum,* the exclusive and dominant brain commissure of the higher mammals, was shown to have

originated and grown within the substance of the hippocampus itself, which became thereby divided into supracallosal and infracallosal portions.

The existence of an "*Affenspalte*" in man was still hotly disputed at the beginning of this century; Bischoff, Cunningham, Hochstetter, Ecker, and Eberstaller held divergent views: Elliot Smith dispelled all doubts, proving that an "*Affenspalte*" exists in the great majority of, if not in all, human brains as a curved sulcus (*sulcus occipitalis lunatus*) on the lateral aspect of the occipital lobe. This decision was based on the demonstration of the

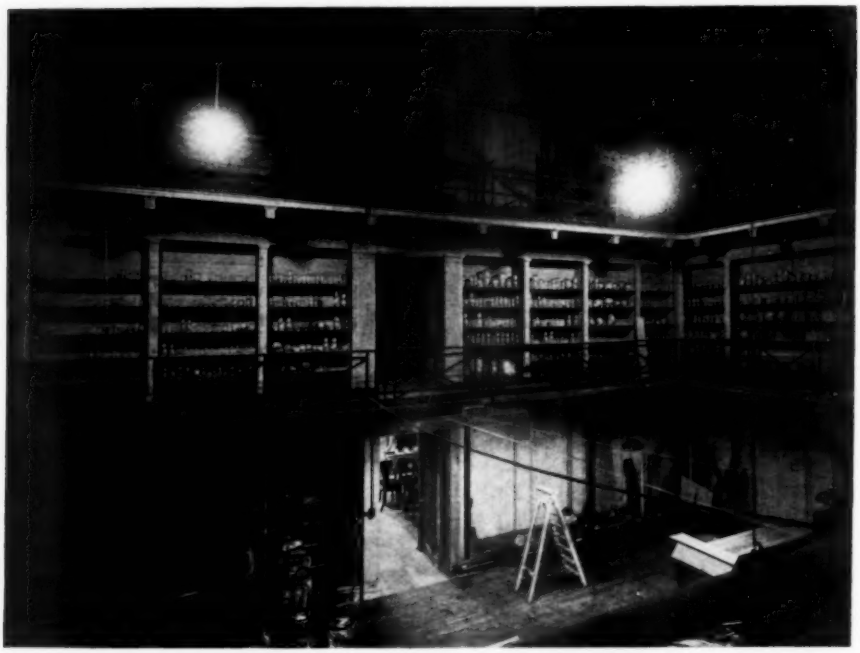

FIGURE XXI. Royal College of Surgeons Museum, Room II, showing active reconstitution of the collection. On the first floor are shown the series of brains on which was based Elliot Smith's descriptive catalogue, 1901.

extension of the stria of Gennari forwards into the caudal lip of the *Affenspalte* in apes and into the *sulcus occipitalis lunatus* in man. He established the correspondence of his *area striata* with the visual cortex and stressed the limiting nature of the *sulcus lunatus*; from the relatively extreme backward displacement of the human visual area he realized the dominant role of vision in primate and human evolution.

His innate feverish energy drove him to the Middle East on archæological bent and to China after the Peking man (*Sinanthropus*); the "homing" instinct which so often beckons those of advancing years to pastures old was strangely non-existent in Elliot Smith, and he scarcely set foot in his native land after first abandoning its shores.

His views on the "diffusion of culture" were those of the speculative amateur and are today no longer fashionable. In his investigation of mummified material he was fortunate in the cooperation and collaboration of Lucas and Armand Ruffer; the Egyptian bones of 4,000 years ago were shown

to exhibit the changes of tuberculosis, not those of syphilis; the ova of bilharzia were demonstrated in the kidneys of those that died æons of time before the birth of Christ.

J. P. Hill. The activities of J. P. Hill commenced in the stimulating atmosphere of that brilliant Sydney group, some like himself from Scotland,

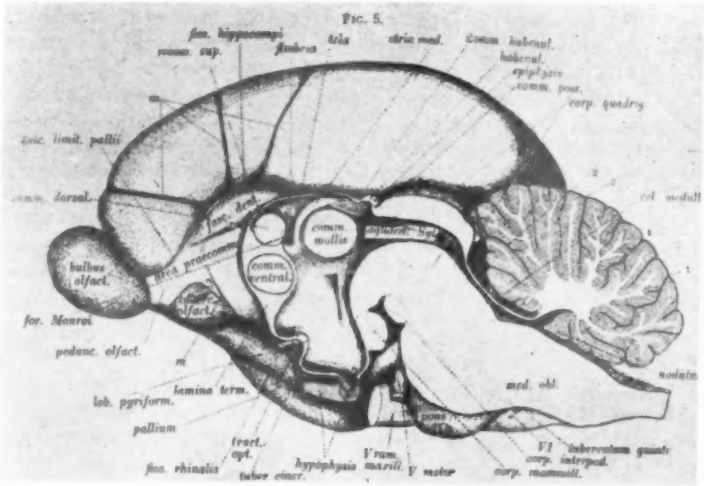

FIGURE XXII. Mesial section of brain of *Ornithorhynchus*, magnified four times, showing absence of *corpus callosum*. (After Elliot Smith.)

at the end of last century, and for fifty years his time and energies have been devoted to embryological studies. A lengthy bibliography of researches in this field of biology attaches to his name since the publication of his early papers on the morphology and development of the female generative organs and the phenomenon of parturition in *Perameles* and other marsupials.

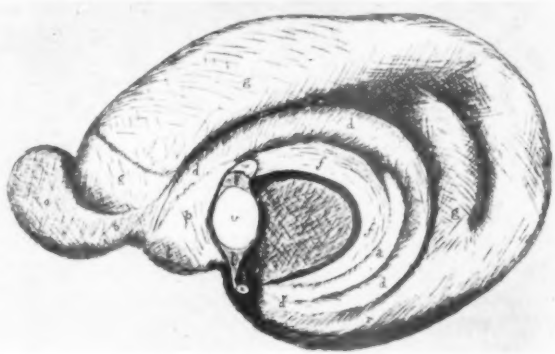

FIGURE XXIII. Mesial surface of the cerebral hemisphere of a marsupial, showing absence of *corpus callosum*. (After Elliot Smith.)

He was the great leader of research at the University College, London, field of embryology, surrounding himself with a group of workers like John Beattie, of the Royal College of Surgeons, F. W. R. Brambell, of Wales, Gattinby, of Dublin, R. Ludford, of the Mill Hill Laboratories of Cancer Research, A. Subbarau, the Indian zoologist, O'Shea, of Galway University, A. Girgis, of the Faculty of Medicine, Cairo, and G. S. Sansom.

The utilization of a couple of initials of a man's name or other abbreviation is often an index of the appreciation or affection of his fellows: "W.G." will for all time commemorate the name and deeds of a great cricketer, "Alan" a great figure and force in the affairs of this College, "Webb-J" a great surgeon-president of a sister corporation. Hill's lovable nature endeared him to his disciples, to whom he was always "J.P."

Sir Charles Martin. Sir Charles Martin came south from Sydney to Melbourne as professor of physiology and worked there in the company of that fine group of teachers (Sir) Harry Allen, Halford the anatomist, Lambert the physicist, Baldwin Spencer the anthropologist, and others. Martin was a man of great intuition and skill in medical research, and possessed of a wonderful gift of stimulating research workers. After the first World War he was appointed director of the Lister Institute, but still continued his active interest in problems of nutrition and immunology. His love of Australia did not desert him, and Adelaide welcomed him with open arms to their Research Institute for a sojourn there after he had retired from the "Lister" in London.

Frederick Wood Jones. In the world of anatomy today Wood Jones stands supreme without a rival. The environment of his full and eager life may not unfairly be spoken of as *varium et mutabile,* for with kaleidoscopic rapidity he has flitted like some will-o'-the-wisp from London to Egypt, Manchester to Nubia, the Cocos to the Coral Islands, China to Honolulu, The London Hospital to Saint Thomas's and the Royal Free, from Adelaide and Melbourne to the County Palatine, and now he is ensconced in that Mecca of all great comparative anatomists, Lincoln's Inn Fields.

Time would defeat me should I endeavour merely to enumerate his many contributions to the sum of human knowledge. The range of his activities has been immense, and of him it may be sincerely affirmed: *"omne quod tetigit ornavit".* He is one of the foremost authorities on coral formation; he has investigated the anthropological treasure stores of Egypt and Nubia; with indefatigable industry and zeal he has probed and fathomed the secrets of comparative anatomy not only in the prosectorium of the gardens of the Zoological Society, but also amid the natural haunts of animals all over the world.

His own views on the ancestry of man constituted a bold and arresting challenge to smug and comfortable wiseacres at the end of the first Armageddon; the anthropoids then lost caste, and the little tarsier-like animal was exalted to occupy a place of honour in the genealogical tree of mankind. His monographs on the hand and foot are in the hands of every student of anatomy and every surgeon worthy of the name.

Despite his prodigious learning he remains a utilitarian anatomist, intransigent in his belief in a thoroughly proficient acquaintance with the essentials of anatomy for all who would embark upon the profession of medicine.

For sheer delightful reading what could be more attractive than his volume of so-called "Unscientific Essays"? They possess much of the charm and reminiscent flavour of the informative essays of Charles Lamb or E. V. Lucas—the bewildering dance of the fireflies, the wondrous manœuvring of the wading birds. What is the impulse coming anon to thousands of these birds like a radio message to a flight of aircraft?—at one moment the whole flock white, revealing the under surface of their wings, and the next minute the whole flock invisible, since their sand-coloured backs are turned towards

the observer. No obvious leader, not an audible work of command! The whole flock may foul a telegraph wire, but no bird ever flies foul of its neighbour.

There are paragraphs on the oily patches in the water, which are as much a monument to the victim of some "underwater piscine crime" as in recent years they heralded a U-boat sent to its doom. He ascribes wisdom to the lowly crabs, the crabs which go out to feed twice a day, and feels sure that they have a great secret like the monkeys, who by some are thought to hold the key of knowledge. And there is the pathetic story of the half sea-serpent that a shark had half-devoured, with its scarlet streamer, its crimson fin and its pathetic eye.

A mere surgeon would be unwise to cross swords with him on such controversial problems as the transmission and inheritance of acquired characters; on the other hand, one may listen with open-mouthed enthralment to his view that until man walked upon the earth in "that majestic attitude which announces his superiority over all the other inhabitants of the globe" he and his forebears climbed and walked about the branches of the trees.

If you accompany him round his beloved Hunterian Museum or look at its stored material, he may talk of the intranarial position of the mammalian larynx, adding that an intranarial position of the glottis is incompatible with vocalization and that the glottis must be withdrawn from the nasal chamber to assume a buccal position during vocalization. Doubtless the relaxation of the muscle fibres round the *hiatus nasopharyngeus* (palatopharyngeus) combined with the contraction of the palatothyroideus (W.J.) passing to the larynx (thyropalatinus of Winslow, Cloquet, Jonnesco *et cetera*) is concerned in the movement of withdrawal, but other auxiliary agencies are required for the completion of the act: (*a*) extension of the head of the animal at the occipito-atloid joint and (*b*) opening the mouth. He will remind you that most mammals capable of producing vocal sounds first extend the head as a preliminary to any vocal effort; opening the mouth completes the movement, and the animal is now free to make a vocal sound; thus a dog may growl with a flexed head, but cannot bark or howl effectively without some extension of the head on the neck. The primitive marsupials in which the larynx is most completely intranarial are generally incapable of producing vocal sounds; on the other hand, man, in whom the larynx is most completely and permanently extranarial, is the most continuously vocal of all the mammalian world.

The good fortune of the Royal College of Surgeons of England in securing the services of such a distinguished scientist as Sir William Collins, professor of anatomy, is deeply appreciated. Wood Jones's great gifts as a teacher and as an orator are not unfamiliar to Australian audiences, nor will the delivery of his Syme Oration in this city be readily forgotten.

The invention of an instrument may assure surgical immortality with a certainty approximating that of an eponymous lecture. The affixation of his name to several species, vertebrate and invertebrate, has left Wood Jones less moved than the surgical hero who inspires a cutler's genius.

John I. Hunter and John Hugo Gray. Two brilliant young Australians, alas, were cut off in early life. John I. Hunter (1898-1924) at twenty-six and John Hugo Gray (1909-1941) at thirty-two years of age. The former, like so many Australian anatomists, had been attracted by the problems of the nervous system and enjoyed for a brief period the great advantage of working under the stimulating influence of Elliot Smith and Kulchitsky at University College, London. Gray came under Woollard's sway and the study of the lymphatics claimed his time and energies.

H. H. Woollard. H. H. Woollard also died at an early age. A graduate of Melbourne, he too came under the influence of Elliot Smith after the first World War. Two men were especially indebted to Woollard's influence and inspiration—Gray and Weddell. Woollard's influence and subsequently that of Hugh Cairns and Le Gros Clark were indirectly responsible for all Weddell's excellent work on the anatomy subserving cutaneous sensibility. Henry Head's theory of protopathic and epicritic systems of nerve fibres finds no support from Graham Weddell's investigations. Woollard's summarization of the contributions of his old chief, Elliot Smith, to neurology is the tribute of a loyal, devoted and learned disciple.

J. L. Shellshear. Shellshear's investigations afford accurate information about the precise origin of the arteries supplying the basal ganglia and the exact manner of their entrance to the brain substance; he found no lateral striate artery to the optic thalamus and suggested that the term lenticulo-optic should be deleted from anatomical nomenclature.

Sir Colin MacKenzie. The activities of the late Sir Colin MacKenzie in connexion with the synergic action of muscles, and more especially in the development of the great museum at Canberra demand mention.

Sydney Sunderland. There is scanty space for reference to the work of Sydney Sunderland on the blood supply of the sciatic nerve and its popliteal divisions in man. His researches have done much to explain the well-known peculiar vulnerability of the lateral popliteal element. Sunderland points out that where this lateral moiety of the sciatic nerve approaches the neck of the fibula the major intraneural vessels occupy a superficial and exposed position in 88% of the specimens. Sunderland also noted in the lateral division of the sciatic and lateral popliteal nerves far less supporting adipose tissue than in the medial popliteal. He has been known to descend from the lofty zone of neurohistology and has drawn attention to the mode of insertion of the humble *quadratus femoris.*

CONTRIBUTION OF AUSTRALIAN FAUNA TO OUR KNOWLEDGE OF ARTHROLOGY AND INTRAARTICULAR CARTILAGES.

The problems connected with the joints of the indigenous mammalian fauna of Australia perhaps constituted an earlier source of attraction to British anatomists than to their Australian *confrères.* As long ago as 1808 Sir Everard Home gave an account of the movement of "pronation" in the wombat; seventy years later, in 1881, A. H. Young, of Manchester, investigated the movement between tibia and fibula in the koala, with its broad hind feet and opposable hallux. Young had already noted the partially ossified fibro-cartilage which intervenes between the lower end of the fibula and astragalus before Pearson, the famous old prosector of the Royal College of Surgeons, redirected F. G. Parsons's attention to this structure in the Tasmanian devil. This cartilage is only encountered in the marsupials, being best seen in those marsupials in which the fibula is very movable—for example, Tasmanian devil, phalangers, opossums, koala *et cetera.* In these marsupials rotation as well as gliding and hinge movements take place at the ankle joint, and Parsons suggested that perhaps intraarticular menisci are formed in these joints where more than one kind of movement is present. It is significant that in the knee of the fruit-bat, where only one kind of movement exists, there are no intraarticular menisci.

In the kangaroo the curious structure just described does not form the typical semilune, but runs downwards and forwards. Protection against lateral movement at the ankle joint in animals with a long foot, like *Macropus,*

is provided by the presence of additional lateral ligaments, which cross X-wise the permanent one.

The patella is well developed in *Ornithorhynchus* and *Echidna*; on the other hand, in all the marsupials except the bandicoot (*Perameles*) the patella is cartilaginous. There is possibly some significance in the coincident association of a cartilaginous patella and a peculiar mobility of the superior tibio-fibular joint; the latter, of course, as in all mammals except *Homo*, is continuous with the knee joint.

Australia furnishes us with the most primitive arrangement of the semilunar cartilages of the knee in the monotremes, where both posterior cornua are attached to the femur. In most other mammals, including the marsupials, an intermediate state obtains, the external semilunar being attached posteriorly to the femur. In man both semilunars are attached to the tibia; the external semilunar forms a complete circle in most monkeys; there are, as we have noted, no semilunar cartilages in the fruit-bat.

The Contribution of Australian Surgeons to the Advance of Surgical Technique.

Of great Sydney operators, the Scotsman Sir Alexander MacCormick is still a name to conjure with today. He was a man of few words, a flair for diagnosis and a sharp knife. He had approached surgery along the avenue of the dissecting room, as was the fashion in his day. The written word is often a meretricious guide to surgical greatness; MacCormick leaves scant published work to perpetuate his remarkable attributes as a surgical operator. His were deeds, not words. Today his disciples and henchmen maintain the "MacCormick tradition" in a manner worthy of the great surgical master, whose skilful, unhesitating hands and unerring judgement had taught and inspired them in early formative years.

"Mac's" love of the sea and of yachtsmanship is equalled only by that of Heneage Ogilvie, William Macewen or James Sherren, and is doubtless not unrelated to the beautiful harbour over which he once lived. The Royal College of Surgeons of England gave him the award of its Honorary Fellowship for his distinguished surgical services to Australia, and especially to New South Wales.

Among the great contemporaries of Syme was Hamilton Russell, whose sudden death in 1933 plunged Melbourne and all surgery in mourning. It required no eponymous lecture to keep Hamilton Russell's memory green; he still lives in the hearts of his devoted pupils, erstwhile colleagues and friends. Though we met only on one occasion, I had always felt that I knew him through his former house surgeons and acolytes, who admired him and loved him so dearly.

Both Syme and Hamilton Russell worked under Lister. The year of Hamilton Russell's own apprenticeship with Lister at King's College Hospital by chance coincided with the occasion of the bestowal of the latter's peerage. Lister inspired Russell with "a love of learning, sincerity of thought and word, and a lofty idealism". He was a patron of the arts, a musician of skill far transcending that of the amateur.

The saccular theory of hernia[29] was an important contribution to the story of a common infirmity; Hamilton Russell's traction method for fractures[30] of the femur was followed by heroic surgeons loyal to his memory in the prison camps of Malaya and Siam with makeshift appliances, wonderful enthusiasm and gifts of improvisation.

The history of the surgical treatment of Graves's disease is closely linked with that of Australasia. A pioneer paper by J. O. Close, of New

Zealand, was delivered at Dunedin exactly half a century ago (1896), a paper which, according to Syme himself,[31] never received the attention that it merited and in which Close reported several most successful cases of thyreoidectomy for Graves's disease.

Nowhere in the world today is goitre surgery more dextrously, more expeditiously or more beautifully performed than in the operating theatres of Australia and New Zealand. Among those who initiated and advanced the surgical treatment of toxic goitre the name of Sir Thomas Dunhill shines with a special brilliance. In those pristine days of the surgery of Graves's disease, and in contrast to the experience of other distinguished surgeons of the world, Dunhill's patients who were in advanced stages did well. Syme remarks in an address: "the important factors in ensuring success in thyroidectomy for thyrotoxicosis are local anæsthesia and skilful, rapid and gentle operating", and said of Dunhill: "he is unquestionably exceptionally skilful and gentle".

The epic story of Dunhill's early goitre surgery[32][33][34][35][36] is not unknown to a Melbourne audience, and the historic night in 1908 when he, with his brother and Cecil Rothera, slowly perambulated Collins Street deep in discussion and fraught with anxiety as to the wisdom of resecting part of a second thyreoid lobe and cutting through the gland tissue in order to obtain a higher level of health for those afflicted with Graves's disease. That night in Melbourne established the modern operation of bilateral thyreoidectomy, which was further developed by Charles Mayo,[41] Halsted,[37][38][39][40] Berry and others.[42]

Dunhill, on a visit to the United States of America some time before the first World War, discussed his own particular technique with Halsted and Crile, who listened *animo intento,* and it seems strange that in Halsted's paper (1912) on "Double Lobectomy in the Treatment of Exophthalmic Goitre" the great Baltimore surgeon should make no mention of Dunhill's work. *Quandoque magnus dormitat Homerus*! Doubtless *Australia Felix* was far from America's eastern seaboard in days before the aeroplane.

The Royal College of Surgeons of England was not unmindful of the Melbourne man's epic contribution and was justly cognizant of the great part that he had played in bringing successful toxic goitre surgery to Britain, and was also aware of the numerous young surgeons who had enjoyed the privilege of an apprenticeship with him and acquired something of his skill. To this confidant of King and commoner, of doctor and surgeon, came the award of the Honorary Fellowship, the most signal honour in the surgical world.

Frank Cole Madden, whose work was so intimately connected with the Kasr-El-Ainy Hospital, Cairo, put all under a deep debt of obligation whose lot it may be to practise in Egypt or the Middle East. His work on "The Surgery of Egypt"[43] went through more than one edition; his monograph on bilharziasis was published forty years ago. This great teacher belonged to that great group of men who worked in harness and made the Kasr-El-Ainy world famous, such as the Miltons, Ruffer, Ferguson, Day, Dobbin, Leiper, Looss, Owen Richards, the wonderful Derry of perpetual youth, and that international figure Sir Aly Ibrahim Pasha, whose recent death is still fresh in our minds.

The story of the parasitic disease and its treatment, whose causal schistosoma Bilharz first discovered in 1851, is closely linked with these great pioneers. The name of Madden is not forgotten in the Middle East today, and Madden's son is at the moment Governor of Darfur.

Primary excision of wounds has now been urged in two world conflicts. Priority of place among those who advocated early excision in the 1914-1918 war indubitably belongs to the Australian E. T. C. Milligan,[44] now of Saint Mark's Hospital, London, whose paper entitled "Early Treatment of Projectile Wounds by Excision of the Damaged Tissue" appeared on June 26, 1915, having been written when he was a surgeon in the casualty clearing zone. A subsequent paper by Sir Henry Gray on "The Treatment of Gunshot Wounds" in the columns of the *British Medical Journal*, August 28, 1915, stated that Gray had made use of excision and primary suture[45] of "certain lacerated furrow wounds" in November, 1914. Inasmuch as Gray was at a base hospital at that period, one questions the propriety of the treatment which he recommended at that stage in the evolution of the wound.

It would be invidious out of this great company to select any for special mention because of meritorious contribution to surgical technique, but none would deny my homage to Sir Hugh Devine for his work in promoting the safety of operations on the large intestine.

The art of the plastic surgeon has made a special appeal to the New Zealander, and this war has made the names of Archie Macindoe, Rainsford Mowlem and Patrick Clarson familiar to the peoples of the Empire and the whole universe, while Sir Harold Gillies has added still further laurels to those he won during and since the 1914-1918 campaign. The wonderful Rhodes scholars who hailed from Adelaide, Hugh Cairns and Howard Florey, have not only figured large in the recent war effort, but have placed Oxford on the surgical map of the world.

The name of a learned surgical teacher, Lambert Rogers, now of the University of Wales, is well known to Melbourne men, for he received his early education in the high school that formerly stood on the very ground where the Royal Australasian College of Surgeons stands today. His work with the Pacific Fleet during the war years will not be readily forgotten by Australasians, or all that he did to foster the good relations between the sister Colleges. As befits an Australian, his penchant is towards the surgery of the central nervous system and of goitre.

CONTRIBUTIONS TO THE ADVANCEMENT OF GYNÆCOLOGICAL SURGERY.

When a more radical and logical operative treatment of cancer of the uterine cervix was advocated in 1895 by Edward T. Thring, F.R.C.S.,[46] of Sydney, practically an identical surgical procedure to that well known today as the Wertheim operation, Thring's operation was loudly condemned, especially by those too incompetent to employ it. Six years afterwards the radical ablation was brought into prominence and established by the Viennese surgeon.

With that worship of things and persons exotic, British gynæcological surgeons have associated the name of Mackenrodt with the cardinal ligaments of the vagina, although the Australian Nyulasy anticipated the foreigner and the ligaments should have been associated with his name.

Worrall, for years the doyen of Australian gynæcology, devised a satisfactory operation for stress incontinence of the bladder simultaneously with, but independently of, Victor Bonney, who has furnished me with this information. Frederick Arthur Maguire, by his writings and specimens, has done much to illumine anatomy of the female pelvis for gynæcological workers.

CONTRIBUTIONS OF OTHER SURGEONS.

In the province of ophthalmology, N. M. Gregg[47] was the first to describe congenital cataract as a complication of maternal German measles occurring

during pregnancy. The experimental work of the late Sir James Barrett on the action of the ocular muscles in the marsupials is well known to all. The contribution of John Lockhart Gibson (1860-1944) to our knowledge of ocular plumbism was of first-rate importance.[49]

The happenings of war recall the name of a great Melbourne surgeon, Sir Thomas Fitzgerald, who was a consultant to the army in the South African War. Sir George Syme was one of his house surgeons. "Fitz" had been elected a full surgeon to the Melbourne Hospital when he was only twenty-two years of age. Halford said that he had "eyes in the tips of his fingers".

The work of Fred Bird was acclaimed by the English College of Surgeons with the award of its Honorary Fellowship.

The name of Sir Charles Clubbe, of Sydney, will be for ever associated with intussusception; Sir Herbert Maitland was removing the sterno-mastoid and internal jugular vein to facilitate the performance of "block" dissections of the neck while Crile was still of tender years. Sir Robert Wade early explored the surgery of the sympathetics.

The contribution of Harry Harris to prostatic surgery has been of outstanding merit; the gentle touch of his fingers in coaxing the prostate from its bed will remain an abiding memory with those who, like the writer, once enjoyed the privilege of visiting Lewisham Hospital, Sydney.

The memory of Bernard Zwar, great comrade in peace and war, will live on in the great temple of healing which his whole-hearted effort did so much to create. The hammerblow of fate was fortunately stayed until such time as he might have soliloquized in those words of Horace: *Non omnis Moriar, Multaque pars mei Vitabit Libitinam.*

Julian Smith's activities have not ceased with his retirement from surgery. His mechanical genius devised a direct transfusion apparatus for the transference of whole blood; he became perhaps the finest amateur photographer of his time.

Ernest Sandford Jackson (1860-1938) even made reforms in nurses' uniforms, for in 1889 he issued an edict[49] that the skirts of their uniforms in the Brisbane Hospital were to be twelve inches from the ground. The shrill outcry from the nurses at the exposure of so much leg went unheeded by authority, but outraged modesty was soothed when it was observed that the matron had been required to cut off her train.

THE CONTRIBUTION OF AUSTRALIA TO OUR KNOWLEDGE OF DISEASE.

Doubtless Australian scientists will never think of *Filaria bancrofti*[50] by another name, but the edict has gone forth that the parasite is now to be entitled *Wuchereria bancrofti*,[51] so the Queensland physician today shares the posthumous limelight with another from Brazil, who in 1866 discovered microfilariæ in the chylous urine of a filarial patient.

What is the story of Queensland's contribution? Thomas Rowlands, of Ipswich, had read of the observation by Lewis, of Calcutta, in 1872, of a microfilaria in the blood and lymph as well as in the chylous urine of persons afflicted with elephantiasis. In 1874 Rowlands, having found a microfilaria in the chylous urine of an Ipswich patient, sent the blood to Bancroft in Brisbane to see if the latter could find the filaria in the blood (November, 1874). Of the parasite which he discerned, Bancroft could find no account in Spencer Cobbold's book[52] on entozoa, and accordingly he dispatched a specimen of blood to his former teacher, Dr. Roberts, of Manchester, with a request that he would send on a sample to Cobbold.

In *The Lancet*, July 14, 1877,[53] Cobbold told the following story. He had received in the spring of 1876[1] some capillary tubes from Australia charged with blood taken from a chylurous patient. Roberts had already verified Bancroft's discovery of the microfilariæ, but Cobbold also noted a nematode ovum in this Australian blood, a fact which rendered it almost certain that the adult worm must be sought for in the human blood.

Bancroft only received his (Cobbold's) letter to him on September 28, 1876, but by April 10, 1877, was able to write to Cobbold that he had now obtained five specimens of the parental worm. "The first I got on Dec. 21st, 1876, in a lymphatic abscess of the arm." Lewis did not find his mature worm till August 7, 1877, but nevertheless managed to get his discovery of the parent worm published in *The Lancet* of September 29,[54] and suggested that for the mature worm the name originally applied to the embryo, *Filaria sanguinis hominis*, should be retained. Spencer Cobbold, who had succeeded Flower as curator of the Middlesex Hospital Museum, and was at that time supreme arbiter on matters of parasitology, deemed Bancroft's name worthy of commemoration on account of his undoubted priority in the discovery of this adult nematode.

Other Wuchereriæ have swum into the parasitological view in the past seventy years, but Bancroft's name remains attached to the filaria whose mature form the Queensland physician first identified.

Hydatid Disease.

The only English-speaking countries where hydatid disease is at all common are Australia and New Zealand. It would be impertinent for a mere visitor to select the names of those who by their researches, writings or skill in operating have done most to promote our knowledge of the malady and to advance its treatment, and those that I mention are quoted from the late Sir Louis Barnett,[55] whose recent death we deplore, who instituted the Hydatid Registry and whose interest in the disease remained undimmed until the end of his long life. I have ventured to arrange these names in alphabetical order, commencing with the name of Barnett himself: Barnett, Bird, Chapman, Cleland, Clunies Ross, Davies-Thomas, Dew, the Fairleys, Graham, Hamilton Russell, Hercus, C. H. Kellaway, Lendon, MacCormick, Maclaurin, J. C. Verco, Miss F. E. Williams, and that fine old anatomist Archibald Watson.

As a matter of history, the first laparotomy in Australia for abdominal hydatid disease was performed by Gardner in 1881, while in 1884 F. W. Bailey successfully treated two patients who were suffering from hydatid disease of the lung by incision and drainage, and introduced this operation to Australia.

Tropical Diseases.

War conditions, especially jungle fighting in the Pacific and South-East Asia zones, brought tropical maladies within the surgical horizon. During the early campaigns against the Japanese in 1942-1943 casualties from sickness were five to thirty times as frequent as battle casualties; malaria and dysentery were rampant and constituted as serious a menace as the enemy, loading the scales heavily against the wounded man, already probably suffering from the aforesaid maladies.

Hamilton Fairley[56] is an international figure; the mere list of his scientific contributions would require a chapter or even a book. His work

[1] The contents of capillary tubes despatched to Roberts and Cobbold in 1875 had deteriorated and did not permit an authoritative pronouncement.

on hydatid disease has already been mentioned, but his interests have embraced such other subjects as snake venom, the Egyptian scourge bilharziasis, and a host of other problems. The story of the research unit at Cairns, North Queensland, does not require to be told to an Australian audience; its results were far-reaching.

In the recent conflict establishment of a high standard of "Atebrin" discipline brought malaria rapidly under control, and from December, 1943, the malaria rate in Australian troops in "hyperendemic areas" had fallen from 740 per 1,000 *per annum* to 26 per 1,000 *per annum* in November, 1944; this low level was almost invariably maintained in the campaigns of 1945. No one man did more to win the war for the Allies in the Far East and Pacific zone than this great research physician. To his scientific attributes there were added an indefatigable enthusiasm and an untiring energy in impressing on all, even the most forward army units, the truths that he had himself gleaned and gathered by hard personal effort. He was at all times ready to oppose intransigently the decisions of his seniors on operational matters, when he felt that their information on material problems *et cetera* was imperfect or awry. Lord Louis Mountbatten once paid him the compliment that without Fairley's work the Burma campaign could not have been fought; he shortened the war in the Pacific by at least one year.

Pathology and Research.

The shores of Australia are nowadays not lengthy enough to contain the activities of its pathological workers. Rupert Willis, whose work on the spread of tumours is known all over the world, now occupies the post of Sir William Collins, professor of pathology at the Royal College of Surgeons of England, where he has associated with him as a research worker Sissons from "The Alfred", Melbourne, engaged in the study of bone sarcoma. Gordon Ray Cameron, whose research work at an experimental station in Britain is known not only to service consultants, but also to the heads of great service departments, had reached Britain before the war. C. H. Kellaway, that great and energetic director of "The Walter and Eliza", is now ensconced in the Wellcome Foundation in the Euston Road, London.

The admirable atlas on Paget's disease of the nipple has introduced Keith Inglis, of Sydney, to surgeons and pathologists all over the world and constitutes the standard account of the malady today.[57]

The story of the famous Walter and Eliza Hall laboratories is a saga of great directors. Death on the field of battle in Gallipoli robbed Gordon Clunes Mathison of the first occupancy of the directorate and medical research of a worker whose future was bright with golden promise. Successively in the leadership of the institution came distinguished men like Sir Harry Allen, S. W. Patterson, Harold Dew, C. H. Kellaway and F. M. Burnet. The last eight years of his directorate were devoted by Kellaway to the study of tissue injury produced by such a plethora of agencies as bacterial toxins, snake venom, bee venom, anaphylactic shock *et cetera*. The results of these investigations may be studied in his Bancroft Lecture.

It is possible only to mention the names of some of the other workers in the field of research: Burnet on virus disease; Rubbo with Adrien Albert, of Sydney, on the chemotherapy of the acridines; Hugh Ward, of Sydney, on the streptococci; and "Bill" Keogh on tissue injury produced by staphylococci and the peptones. Penfold and Tolhurst,[58][59] from "The Alfred" in Melbourne, provided in 1938 the first demonstration of the practicability of immunizing man against gas gangrene by means of a toxoid. The valuable work on goitre carried on in the University of Otago by Sir Charles Hercus

and his colleagues, Griesbach, Kennedy and Purves,[60] is well known to all. The recently published monograph[61] of Cox and Tolhurst, of "The Alfred" on human torulosis is the most complete and authoritative work on this subject.

A few months ago the work of Miss Dorothy Russell has promoted her to professional status at the London Hospital.

THE GIFTS OF COURAGE AND IMPROVISATION.

One of the sterling qualities of the Australian or New Zealander is his innate matchless courage. It is commemorated in the observance of Anzac Day; the cemeteries of Flanders and the Somme are its silent symbol, while the crosses and the graves amid the jungles and islands of the Pacific, on the beaches of Crete and the sandy wastes of the Middle East, on the quiet hill above Alamein, and around the prison cages and pest houses of Java, Malaya and Siam testify that the breed runs true. Even if in some thrice-blessed future halcyon time the waging of war be but a memory, the interest of war can never cease, for despite all its cruelty and futility it has a power of raising men and women to their highest and exhibiting human nature at its greatest. The story of the New Zealand surgeon Angus McNab,[62] bayoneted while dressing wounded men of the London Scottish and while wearing a Red Cross brassard in the bright moonlight on a night in 1914 by the Boche, had its more hideous counterpart in the more recent massacre of the brave Australian nursing sisters in the Pacific zone of conflict. The lines of Simonides are as true of your folk today as of the men of Sparta:[1]

εἰ τὸ καλῶς θνήσκειν ἀρετῆς μέρος ἐστὶ μέγιστον,
ἡμῖν ἐκ πάντων τοῦτ' ἀπένειμε τύχη·
Ἑλλάδι γὰρ σπεύσαντες ἐλευθερίαν περιθεῖναι
κείμεθ' ἀγηράντῳ χρώμενοι εὐλογίᾳ.

The simple epic tales of men like A. E. Coates and E. E. Dunlop[63] ("Dunlop of the Railway"), the embryology manuscript of Howard Eddey written behind prison bars, the "works and days" and words of those like Charles Osborn, Marsden, Cotter Harvey, Rose, Fagan, Corlette, S. E. L. Stening, L. E. Le Souef and Bruce Hunt leave the reader or listener in doubt whether to admire more the doctors and the "care that sat under the brows of dauntless courage", their remarkable gifts of improvisation, their record of thousands of transfusions of defibrinated blood, the preparation of "local" catgut and the myriad other appurtenances, devices and tools, tools that their own invention placed in eager hands, or, on the other hand, the stolid fortitude and high morale of the patients despite all that the sadistic, satanic Jap could do to try to break their spirit. The ultimate death rate of surgical operations may have been high among these prisoners of war; constitutions had been undermined by disease and privation; the environment of surgery was appalling; surgical appliances and the wherewithal for the most menial offices of Nature were scanty, exiguous and home-made. Yet in retrospect well might these heroic surgeons exclaim in these words of Ovid: *Nec tam turpe fuit vinci quam contendisse decorum est.*

THE GENEROSITY AND LIBERALITY OF AUSTRALIAN AND NEW ZEALANDER.

The never-failing liberality of Australian and New Zealander through the arches of the years, the gifts of men and material, the genius of thought,

[1] If Valour's best be gallantly to die,
Fortune to us of all men grants it now
We to set Freedom's crown on Hellas' brow
Laboured, and now in ageless honour lie.

the sword of the spirit, have inevitably dominated my mind during this address. Your great-heartedness is not only to be measured in the wealth of material contribution of which I have made mention, but is to be reckoned in terms of that generosity of spirit with which Wordsworth clothes his "Happy Warrior".

For one brief moment I would dare to assume a wider responsibility and speak not only for the surgical worker or scientist in Britain, but for all those at home, peasant or peer, doctor or patient, greybeard or tender youth, and I would assure you of our deepest gratitude for all your wondrous assistance to us beyond the English Channel in the lean years that have been ours during the aftermath of war. You are truly a race whose right hand scarce knows what the left hand doeth.

> Was there aught that I did not share
> In vigil or toil or ease,
> One joy or woe that I did not know,
> Dear hearts across the seas?

Not unnaturally I am also thinking of those generous New Zealanders, Arthur Sims and his family, who momentarily provided the means for an annual interchange of surgeons and physicians at a professorial level between the various Dominions and between Dominion and the Homeland. This outstanding act of far-sighted liberality must go far towards promoting the most free exchange of scientific medical thought throughout the British Commonwealth, and "though mountains divide us and the waste of seas" will forge another link that will knit together its far-flung Dominions.

The generosity of Gordon Craig has perhaps done more than that of any Australian to promote post-graduate training of young surgical specialists from Australian shores.

I would also, as one who served in the Royal Navy in the Pacific zone, thank you for the extraordinary kindness and hospitality vouchsafed at all times to every officer and man of the Pacific Fleet, and on behalf of the medical officers in His Majesty's ships for the facilities which those in charge of departments, especially anatomical departments, placed within their grasp.

ACKNOWLEDGEMENTS.

My burden of indebtedness in the preparation of this lecture is a heavy one, but my foremost duty is to thank the President and Council of the Royal Australasian College of Surgeons for the great honour which they have accorded me in appointing me eleventh Syme orator. The honour is appreciated by me the more, since this is only the fourth occasion when one of your Honorary Fellows has delivered this oration, nine years having elapsed since my friend and Middlesex Hospital colleague, the distinguished president of the sister College in England, Sir Alfred Webb-Johnson, Bt., delivered the Syme Lecture in this city.

To the president of the Royal College of Surgeons of England I am grateful for placing at my disposal and for permission to have reproduced two of Rowlandson's drawings and also a water-colour drawing by T. H. Shepherd representing Room III in far-off times before the holocaust which destroyed this part of our museum. These artistic treasures are kept under lock and key within our precincts in Lincoln's Inn Fields and are among the possessions on which we lay special store. None of these three illustrations has been published heretofore.

The hours of labour so ungrudgingly given to aid me by Mr. W. R. LeFanu, M.A., of the library of the Royal College of Surgeons of England, by Mr. G. F. Home and all the courteous library staff at the Royal Society of Medicine, by Mr. A. Cockburn Townsend, of the library of the Natural

History Department, British Museum, who gave me access to the Owen Collection of Letters, and by Mr. W. J. Bishop, librarian at the Wellcome Foundation, deserve my special acknowledgement and my profound gratitude.

Australian friends like Dr. C. H. Kellaway, F.R.S., director of the Wellcome Foundation, and Dr. Rupert Willis, Sir William Collins, professor of pathology at the Royal College of Surgeons of England, have done much to direct my steps and lighten my labours. For assistance on the story of the anatomical portion of our museum I never turned in vain to great anatomists like Professor F. Wood Jones, F.R.S., now of the College of Surgeons, or Professor A. J. E. Cave, of Saint Bartholomew's Hospital. The Zoological Society kindly granted me the facilities of their library in connexion with former communications of Sir Richard Owen, some of them presented at its meetings a hundred years ago.

I am also sincerely grateful to Miss Suad Sawiris, of the Anglo-Egyptian Union, Cairo, who has had the misfortune to be charged with the preparation of my typescript.

CONCLUSION.

The pioneer is rarely the exploiter, and the man who demolishes an old edifice and marks out the lines of a new one does not often live to see the walls arise. It was not otherwise with Syme. After the iconoclastic era of your beginnings and the tentative formulation of your ideals, aspirations and ambitions the future story of your College was not to be reckoned or computed in the tale of one man's years. Syme was a man of no myopic vision, and for him, as for you today, there lay ahead a golden future for your College, full of promise, advance, achievement and honour, a bright vista stretching far beyond our scan. The tradition of the great Australasian surgeons of the past and of today is your imperishable inheritance, pervading your College and determining "the spirit of the place".

Within the shrine high upon the Castle Rock that guards Scotland's capital there is a memorial to the men of the Royal Scots Fusiliers, a Scottish regiment with which I have some family connexion, who perished in the first World War. In this hallowed corner there is to be found a translation of those memorable lines which Thucydides, that consummate master of words, puts in the mouth of the great Athenian Pericles, lines doubtless known to many here:[1]

> *ἀνδρῶν γὰρ ἐπιφανῶν πᾶσα γῆ τάφος, καὶ οὐ στηλῶν μόνον ἐν τῇ οἰκείᾳ σημαίνει ἐπιγραφή, ἀλλὰ καὶ ἐν τῇ μὴ προσηκούσῃ ἄγραφος μνήμη παρ' ἑκάστῳ τῆς γνώμης μᾶλλον ἢ τοῦ ἔργου ἐνδιαιτᾶται.*

"Wrought into the stuff of other men's lives"! I have spoken at length of your forebears this evening, the very wind of whose name has often been wafted to far-distant shores and seas; but upon you, the younger Fellows of this College and your successors and generations to come will devolve the task, the duty and the honour of maintaining the great tradition bequeathed to you by those predecessors and carrying forward the torch of surgical progress.

For your task I can offer you no better watchword than that given by a great Scotsman, Sir James Barrie, to the "Red Gowns" of Saint Andrews in a rectorial address some years ago: "I can give you", he says, "no staff for your journey; each one of you must carve it for himself and its name is

[1] The whole earth is the tomb of famous men; neither is their name graven only on stone that covers their clay, but abideth everywhere without visible symbol, wrought into the stuff of other men's lives.

courage . . . . It is the loveliest virtue, the rib of Himself which God gave to His children".

I never met Syme, but diligent reading of the man and his work recalls to my memory the tribute of John Buchan, Lord Tweedsmuir, to that fine Scottish nobleman, the great Montrose; it seems not inappropriate to the one we commemorate today: "He is a figure who must always inspire those who travel the rough roads of history . . . his course set unfalteringly towards his dreams, carrying 'an awful warmth about his heart like a load of immortality' . . . . His qualities in the retrospect seem to be drawn to a fine edge of burning light; but as we wonder and revere, there comes a voice from behind the flame, and awe is changed to wistfulness; for it is a voice of comradeship and joy and youth."

Such a one was the first president of this Royal College, George Adlington Syme, in whose honoured memory this address has been given in my poor, faltering words on this evening in June.

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PRESIDENT'S ADDRESS.[1]

By H. R. G. POATE,
President of the Royal Australasian College of Surgeons.

ON behalf of the Council and Fellows of the Royal Australasian College of Surgeons I am privileged to welcome so many distinguished guests to this inaugural session of our twentieth annual general meeting.

It is very pleasing that we are able to meet in this hall again to carry out our customary ceremonial procedure, which initiates a week of scientific meetings and discussions concerning the recent developments in the art of surgery. The object of my address this evening is to give you some idea as to how our College is meeting the obligation entered into at its inception both with regard to our duties to our own Fellows as well as to the lay citizens of the Commonwealth of Australia and the Dominion of New Zealand; but before proceeding with this there are a few matters I feel should be mentioned.

It was with the deepest regret that we heard of the death of Sir Louis Barnett, of New Zealand, a former president, and for very many years a member of council and in charge of the Hydatid Registry which now bears his name.

We have also lost a former honorary secretary and treasurer, also a member of the council for many years, in the person of the late A. L. Kenny. This past year has been a particularly busy one for the Grim Reaper among our Fellows, for, in addition to the two just mentioned, we have lost five from New Zealand, eight from New South Wales, and six from Victoria—a total of twenty-one for one year. As a result, the total of our Fellows has dropped to 658 this year as compared with 670 last year.

Before proceeding further, I wish to make reference to two resignations from the council of the College which were received and most regretfully accepted by the council. Mr. E. D. Ahern, of Brisbane, a past president, resigned on January 10, 1947, after eighteen years of valuable work, including the formative years of the College, during which his broad outlook and wise counsel were most helpful. The council by resolution has placed on record their deep debt of gratitude to Mr. Ahern for his services to the College.

On February 19, 1947, Sir Alan Newton, of Melbourne, felt impelled to ask for acceptance of his resignation, also after eighteen years of service, during which he occupied several official positions, including those of censor-in-chief and later that of president. In accepting Sir Alan Newton's resignation, members of council placed on record an expression of their deep appreciation and great gratitude for the signal services rendered to the College by him during the eighteen years in which he held office and during which his ability and talents were consistently devoted to constructive work in the building of the College, in its administration and its organization. We feel that the present position of the College is largely due to the energy, wisdom and foresight of Sir Alan Newton, and we are pleased to report that he has agreed to accept appointment as adviser on post-graduate surgical education, so that the College will retain the benefit of his guidance and experience in connexion with our educational work. It is very gratifying

[1] Accepted for publication on June 9, 1947.

that Sir Alan Newton's worth has been recognized in England by the conferring upon him of an Honorary Fellowship of The Royal Society of Medicine.

The vacancies on council were filled by the appointments of Mr. Douglas Miller, of Sydney, and Mr. Henry Searby, of Melbourne, both of whom we feel will worthily uphold the distinction of their predecessors.

We are pleased to see Sir Hugh Devine restored to good health again after his recent serious illness, and Mr. Searby has been appointed vice-chairman of the editorial committee so as to assist Sir Hugh Devine in the administration of THE AUSTRALIAN AND NEW ZEALAND JOURNAL OF SURGERY.

As forecast in my address last year, facilities for the apprenticeship training required of our young surgeons to qualify for Fellowship of the College have been extended now to all the teaching hospitals of our capital cities so that in future all candidates will possess that basic training in principles, practice and art of surgery we consider essential for safeguarding the interests of the public.

The post-graduate courses in surgery instituted by the College have been carried out regularly and a special course at Prince Henry's Hospital, just concluded, was enhanced in value by the energy, ability and teaching skill of Sir Gordon Gordon-Taylor. The College has continued its policy of developing Prince Henry's Hospital, Melbourne, as a post-graduate teaching hospital, and it is gratifying to record that graduates from all States of the Commonwealth and from New Zealand have attended these courses.

It is pleasing to record also that the College has received the utmost cooperation and assistance from the president, Mr. W. H. Roddick, the board of management and the honorary staff of Prince Henry's Hospital, Melbourne, who have all been most enthusiastic about the College work at the hospital, and it is largely due to their interest that such a measure of success has been obtained in our post-graduate activities.

During the year two further awards of Gordon Craig Scholarships have been made, totalling eighteen in all—two going to New Zealand, nine to New South Wales, and seven to Victoria. Ten of the scholars proceeded overseas and eight are carrying out their work in Australia. These scholarships for the training of young men in surgery were made available through the munificent bequest to the College for this purpose made by the late Mr. Gordon Craig, of Sydney. During the war years these scholarships were held in abeyance, but the College began their allocation again last year, when ten appointments were made.

A matter of great importance to the community at large has been finalized in that a Commonwealth professorship has been founded as a result of the interest and efforts of the president of the Royal College of Surgeons of England, Sir Alfred Webb-Johnson, who has received an endowment for the purpose from most generous New Zealand donors in the persons of Mr. Arthur Sims and his family, who have business interests throughout New Zealand and Australia and in London. I should like to take this opportunity of paying a tribute to Mr. Sims and his family for their generosity and breadth of vision in providing such a magnificent endowment. This foundation will permit of the appointment of an eminent surgeon, physician or research worker to visit Australia, New Zealand and possibly other Dominions at least annually for the purpose of delivering post-graduate lectures and carrying out other post-graduate work. Alternative appointments may also be made to enable a distinguished medical graduate from Australasia to visit England or the other Dominions. It is hoped that the first appointment will be made early in 1948.

The Royal College of Surgeons conducted an examination for the primary fellowship of the College last January in Melbourne, Sydney and Dunedin, when, out of an entry of 113 candidates, 51 were successful, that is, 46%, which is a considerably higher standard than usual.

The visiting examiners were Sir Heneage Ogilvie and Professors McSwiney and Hadfield, and it was with the deepest regret we received news of the death of Professor McSwiney only a few weeks after returning to England, due to a fulminating pneumonia.

This year we have had the first Archibald Watson Memorial Lecture, delivered in Adelaide by Sir Henry Newland under the ægis of the Royal Australasian College of Physicians, with whom we share this lectureship in honour of a man who did so much to help anatomy and surgery in Australia. In Sydney the first Herbert Moran Memorial Lecture was given by Professor Keith Inglis during the New South Wales State meeting of the College.

The publication of THE AUSTRALIAN AND NEW ZEALAND JOURNAL OF SURGERY has been continued upon the same high standard, although many difficulties had to be overcome in its publication.

Increasing use has been made of the Gordon Craig Library both by our own Fellows and by the Fellows and Members of the Royal Australasian College of Physicians and by post-graduates attending various courses of instruction in Melbourne. It is pleasing to record that a number of overseas journals we received prior to the war years which were not available during that time are once again being received. The indexing of our prized Cowlishaw Collection has been completed and a catalogue for both the Gordon Craig Library and the Cowlishaw Collection is nearing completion.

During the past twelve months I have been able to attend the State meetings of the College in Brisbane, Adelaide, Hobart and Perth, and found that the interests of our Fellows were of a high standard and their meetings very successful. It was with regret that I found it impossible to visit our New Zealand colleagues.

I trust that this brief review of our activities has shown you that our College is maintaining the high standard we have set ourselves in providing facilities for the higher education of our young surgeons, the extension and exchange of knowledge among our Fellows and the cultivation of the art and science of surgery, so that we may better serve our fellow citizens.

CARCINOMA OF THE RECTUM.[1]

By JOHN TURNER,
Melbourne.

INTRODUCTION.

IN Melbourne carcinoma of the rectum is not common among patients attending public hospitals. Analysis of the records in three teaching hospitals over a period of ten years shows that only 190 patients were operated upon for removal of the growth. The surgeons therefore lack experience concerning the management of the disease, particularly with regard to the selection of patients suitable for operation, the pre-operative preparation, the operative technique and the post-operative management.

It is not surprising that the results of treatment have been unsatisfactory in comparison with those of the larger clinical schools abroad. Whereas overseas surgeons[1][2][3] are able to report that approximately 75% of patients presenting with the disease undergo operation for its removal with an operative mortality varying from 5% to 15%, in three Melbourne public hospitals only 34% undergo operation for excision of the growth and the operative mortality is 32%. Although it is notorious that the mortality of a collected series is invariably higher than that published by individual surgeons, a marked disparity obviously exists.

Another feature of some importance arises when the two groups of figures are compared. In Melbourne in the period covered by this analysis the perineal method of excision of the rectum was performed in 55% of cases and has apparently been regarded as the standard method of treatment. On the other hand, unless preservation of the sphincters is possible, overseas surgeons have almost universally adopted a more radical approach and have standardized their technique on either the abdomino-perineal or the perineo-abdominal operation.

The object of this paper is to suggest means whereby an improvement may be obtained in our results and a larger proportion of patients be submitted to operation that is sufficiently radical and has a lowered mortality rate.

DECISION AS TO OPERABILITY.

Local records show that 66% of patients admitted to hospital suffering from carcinoma of the rectum are regarded as inoperable. This figure does not include those who were regarded as inoperable after examination in the out-patient department and were not subsequently admitted to the wards.

Many patients are obviously inoperable on clinical examination or abdominal exploration, but in other cases the decision as to operability is a matter of individual opinion which is undoubtedly influenced by the experience of the surgeon in the management of the disease. This is illustrated by the statistics of the large overseas clinics. Bacon reports an operability rate of 81%;[1] at the Lahey Clinic the figure is 88%;[2] whilst at Saint Mark's Hospital 70%[3] of patients are submitted to operation for removal of the growth.

[1] Accepted for publication on January 21, 1947.

It will be noted that there is a difference of approximately 40% between the local and overseas figures concerning operability. Examination of the case histories shows that this difference is not explained on the grounds that patients present themselves here at a later stage of the disease or that there is any undue delay in instituting treatment because of previous misdiagnosis. Table I shows the duration of symptoms in 100 consecutive cases both operable and inoperable.

TABLE I.

Duration of Symptoms.	Number of Cases.
Under three months	32
Three months to six months	28
Six months to one year	23
One year to eighteen months	10
Over eighteen months	7

These figures approximate quite closely to those published elsewhere. Furthermore, in the present series treatment has been delayed by previous misdiagnosis in 4% of cases, a figure which is probably comparable with that from overseas.

It is suggested that the wide disparity which exists regarding operability could largely be corrected by the following means:

1. The adoption of the combined type of operation (abdomino-perineal or perineo-abdominal) as a standard method of approach. It is considered that this method allows more patients to be included in the operable group. At Saint Mark's Hospital[1] from 1921 to 1931, when the perineal method of excision was used almost exclusively, 54% of patients were regarded as operable. In latter years, since the adoption of the perineo-abdominal method, the percentage has risen to 70.

2. A more liberal view of the assessment of operability. As is the case with any form of malignant disease, the assessment of operability depends upon the presence or absence of metastases, the fixity of the tumour and the general condition of the patient.

i. The presence of metastases (after clinical examination or abdominal exploration). Cases falling into this category need no comment and do not affect this discussion.

ii. Fixation of the growth. Local records show that fixation of the growth is the commonest contraindication to resection. A bolder approach to this problem seems warranted. It is frequently found that a growth apparently fixed in one or other direction is readily removable. This is particularly the case when the growth is fixed posteriorly or when it is adherent to the vaginal wall.[2] The estimation of what can be adequately removed is obviously a matter of considerable experience and judgement. Rectal examination is the deciding factor in growths situated in the lower and middle thirds and in a few of the intussuscepted upper zone cases. Placing the patient in the right lateral position and examining with the left index finger, as suggested by Miles, is of the greatest assistance in a difficult case. When the growth cannot be completely examined in this manner, the decision as to mobility must be delayed until laparotomy is performed.

iii. The general condition of the patient. The majority of younger people suffering from the disease are in satisfactory condition or can readily be

brought into a satisfactory condition by suitable pre-operative treatment. The commonest consideration is old age and its associated cardio-vascular and renal disease, and these are frequently cited in case histories as a contra-indication to removal, particularly when resection appears difficult on clinical examination. However, with well-planned pre-operative and post-operative management it is surprising how well such patients stand radical operative procedures. Old age, arteriosclerosis and renal insufficiency should be treated on their merits and if they are not likely to cause the early demise of the patient *per se*, resection should be performed if the condition is otherwise operable.

The Management of Inoperable Cases.

Palliative methods of treatment are occasionally required in inoperable cases. The measures employed include the use of radium, palliative excision, intrathecal alcohol injections or other procedures for the relief of pain, and colostomy.

Little comment is necessary regarding the three first-named methods of treatment. The results of radium and X-ray therapy in the treatment of carcinoma of the rectum have in the past proved unsatisfactory and its use in cases considered inoperable does not seem warranted. Similarly, it is seldom justifiable to submit a patient to an operation for resection of the growth with its known appreciable mortality rate and prolonged convalescence when the growth is locally operable but secondaries are present on clinical or abdominal exploration. Intrathecal injections of alcohol and chordotomy have seldom been performed in Melbourne public hospitals for intractable pain of the somatic type in inoperable cases or when the condition has recurred after operation for removal of the growth. From published reports their use is indicated in suitable cases when life is likely to be prolonged.[23]

On the other hand, colostomy is frequently performed for inoperable cases. Indeed it seems to be the standard method of treatment. The records at two hospitals show that in a series of 239 cases 139 patients were submitted to the operation of colostomy, a percentage of 58.

It may be claimed that colostomy gives relief from certain symptoms, such as pain and frequent bowel actions, and prevents the development of such complications as intestinal obstruction, abscess and fistula.

There are, however, certain objections to the almost routine performance of a colostomy in inoperable cases. First, colostomy does not necessarily prevent complications and relieve symptoms. This is particularly so with regard to the development of abscess and fistula and to the continuance of frequent passage by the rectum of blood, pus and mucus. Secondly, local records show the surprisingly high operative mortality rate of approximately 27%. The operation itself should not be accompanied by any particular risk, and it is apparent on examination of the case histories that it has been performed in many poor risk cases in which operation was scarcely justified. Thirdly, many patients do not live long enough to become accustomed to a colostomy life and its supposed benefits. Hence, rather than improving matters, it may be that colostomy adds to the risks and discomforts of the patient.

The conclusions reached by the author are that the operation should be employed only when (*a*) the patient is a reasonable operative risk, (*b*) there is a reasonable expectation of life, (*c*) the symptoms can be relieved by diversion of the fæces. This is the case with acute intestinal obstruction,

chronic intestinal obstruction and painful defæcation due to the infiltration of the anal canal by the growth.

THE MANAGEMENT OF THE OPERABLE OR PROBABLY OPERABLE CASE.

In planning the surgical approach to the operable or probably operable case the surgeon is confronted with three decisions: (*a*) the type of operation to be performed, (*b*) the possibility of preservation of sphincteric control, (*c*) whether preliminary colostomy should be performed. Usually it is possible for the surgeon to come to some definite conclusions with regard to these matters after a thorough clinical examination, but occasionally it is necessary to defer the final decision until the abdomen has been opened.

The Type of Operation to be Performed.

The choice of operation lies between perineal excision and abdomino-perineal or perineo-abdominal excision. In so far as perineal excision allows for removal of the rectum with only a limited excision of the colon and lymphatic field, it may be regarded as a conservative operation. On the other hand, abdomino-perineal or perineo-abdominal excision may be regarded as a radical operation because it allows of excision of the rectum and colon and the lymphatic field up to the site of the artificial anus.

In arriving at a decision the surgeon should take into careful consideration the following points:

1. The length of bowel removed. In perineal excision the average length of bowel removed is eight inches (Figure I), whereas in the radical operations more than twenty inches (Figures II and III) can be excised. The significance of the length removed will be realized after examination of Table II, showing the situation of the tumour in 100 consecutive cases of the disease.

TABLE II.

Site in the Rectum.	Number of Cases.
Upper third	55
Middle third	25
Lower third	20

It will be seen that the majority of these tumours are situated at a distance of five to six inches from the anal margin. In these cases it may be difficult to divide the bowel at an adequate distance above the growth when the approach is made solely from the perineum. This is particularly the case when the patient is of a short, stout build with a narrow pelvis.

2. The extent of removal of the lymphatic field. In perineal excision as a rule a very limited removal of the lower portion of the mesocolon with its associated lymphatics is carried out. On the other hand, the radical operations allow for complete excision of the pelvic mesocolon (Figure IV).

Westhues,[5] Coller and Ransom[6] and Dukes[7] have conclusively shown that the lymphatic spread in carcinoma of the rectum is essentially upwards along the superior hæmorrhoidal vessels. The extent of the downward spread is only 4·0 to 5·0 centimetres from the lower edge of the tumour. Therefore, if adequate removal of the lymphatic field is to be performed, it is necessary to remove the pelvic mesocolon and its contained lymphatic glands.

The importance of adequate excision of the lymphatic field in an upward direction is shown by the fact that 48% of the cases in which treatment was

carried out at the Royal Melbourne Hospital showed spread to the glands along the superior hæmorrhoidal vessels.

3. Operative mortality. Local figures show that the mortality rate for perineal excision has been 20%, whereas that for the radical operations has been 34%. These figures are really very bad and there is no reason why with thorough surgical planning they should not approach the overseas figures of between 5% and 10%,[1] and 10% and 15%,[2] respectively. It is probable that the operative mortality for radical operations will remain somewhat higher than for perineal excision, but with experience in management there should be no very great disparity.

FIGURE I. A specimen approximately seven and a half inches long, demonstrating the average length of bowel removed by perineal excision. The growth was situated in the middle zone of the rectum.

4. The survival rate. Over a period of five years the survival rate following perineal excision was 52%, whereas following radical excision it was 65%.[3]

5. The decision as to operability. As previously stated, at Saint Mark's Hospital from 1921 to 1931, when the perineal method of excision was used almost exclusively, 54% of cases were regarded as operable. Since the adoption of the perineo-abdominal method of excision 70% of the cases have been operated upon for excision of the growth.

There can therefore be little doubt that the abdomino-perineal or perineo-abdominal operation is preferable to perineal excision, for not only does the more radical procedure permit a wider removal of the growth as well as the lymphatic field, with an improved survival rate, but it also allows the surgeon to bring more patients into the operable group. The author considers that these advantages outweigh the disadvantages of a higher operative mortality, and that perineal excision should be restricted to those instances in which the patient is a poor surgical risk, and only then if the growth is in the lower or middle third of the rectum.

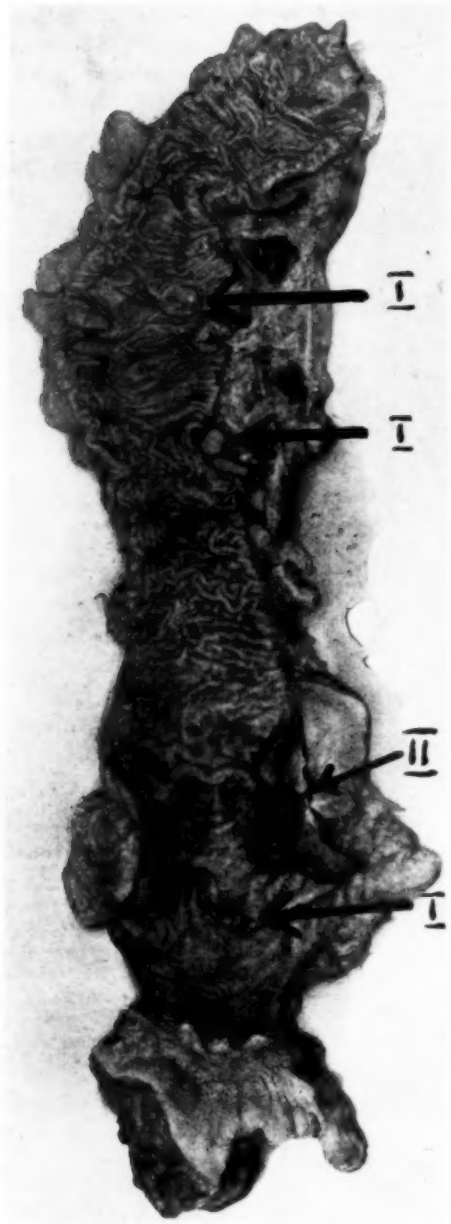

FIGURE II. Approximately 22 inches of bowel have been removed by combined perineo-abdominal excision. Small adenomata (I) were present above and below the growth (II), which was situated in the upper zone of the rectum. Perineal excision would have provided inadequate local excision.

Preservation of Sphincteric Control.

Local figures show that in less than 5% of the total number of operable cases was an attempt made to preserve sphincteric control. It is therefore not possible to draw any reasonable conclusions from these figures.

It must be remembered that these operations have been employed since 1880,[9][10][16] but have never been accepted as a standard method of treatment of the disease, especially in English-speaking countries. Following the publications of Miles in 1908,[13] advocating a radical surgical approach, there were but few published accounts of operations for preservation of sphincteric control. Of recent years, however, interest in the problem has been revived by the writings of Bacon,[1] Babcock,[12] Pannett,[15] Grey Turner[14] and Mandl.[16]

These operations aim at the ideal of restoring the patient to normality or near normality. Admirable as this conception is, each case must be treated on its merits and due consideration must be given to the following essentials:

1. Adequate continence must be obtained. Figures show that with low circular suture or "pull-through" operations of the Hochenegg type continence is complete in 40% to 50% of cases.[1][15] In the remainder the patients are said to have moderate continence, but require the use of a perineal pad. Opinion differs as to whether the latter group are better or worse off than patients with an efficiently managed abdominal artificial anus. Lahey,[16] a strong protagonist of radical surgical procedures, states emphatically that it is better to have a colostomy in a site where it can be visualized. On the other hand, Bacon[1] is equally emphatic that

even with moderate continence patients are more comfortable than those with an abdominal colostomy. The decision perhaps depends upon the individual concerned. Although the majority of people become accustomed to the management of a colostomy, a small percentage would rather put up with the possibility of a certain amount of incontinence to preserve the ability to defæcate *per vias naturales*.

2. There must be adequate removal. This is probably the greatest objection to the adoption of these operations as a standard method of approach. As pointed out previously, the extent of the excision above the growth is the all-important factor. Downward spread is limited and it has been shown that if the growth is 7·0 centimetres from the anal margin, excision can be adequately performed from this point of view.[1][5][6] With regard to upward spread, the adequacy of excision with preservation of sphincters depends upon the mobility of the colon and the arrangement of the blood vessels. Thus if the mesentery is short there is considerable difficulty in mobilizing sufficient length of bowel for either suture or pull-through. Also if the sigmoid vessels arise separately, ligation of the inferior mesenteric artery between their origin preserves the viability of the bowel below; on the other hand, when the vessels arise together, division of the inferior mesenteric artery, which may be necessary for mobilization, will result in gangrene of the distal segment. This problem has been discussed in detail by Sunderland.[17]

3. The mortality rate should approximate that of other procedures. With adequate skill and care there is no reason why this should not be so. In fact,[1][12][13][15] quoted figures are somewhat better than for radical operation.

4. The morbidity of the operation should not be increased. Convalescence must not be unduly prolonged by the occurrence of such complications as stricture, gangrene at the anastomotic site, and fistula.[15]

The operations performed for preservation of sphincteric control were, as previously stated, described many years ago. They are performed today in much the same manner, with occasional modern modifications. In the main they fall into the following groups.

Sutured Operations.

Sacral Excision and Suture[11] (Figure V). Although this operation is occasionally successful, it must be condemned as essentially inadequate. Furthermore, it does not necessarily give complete continence.[1][15]

Abdominal Excision and Anastomosis[12][19] (Figure VI). Abdominal excision and anastomosis

FIGURE III. A case of multiple polyposis of the colon and rectum in a man aged thirty-two years. Twenty inches of bowel were removed by combined perineo-abdominal excision prior to total colectomy. A large carcinoma was present in the lower segment of the pelvic colon.

is the operation of anterior resection. It allows for adequate excision and gives complete continence. It is, however, more applicable to growths in the lower part of the sigmoid. With regard to the rectum, it is undoubtedly limited by the mobility of the colon and the arrangement of the blood vessels.

FIGURE IV. A specimen removed by perineo-abdominal excision, demonstrating the extent of lymphatic field removed by this method. The growth (I) was situated in the upper third of the rectum and a metastasis (II) was present in the lymph glands along the inferior mesenteric vessels.

Abdomino-Perineal Excision and Suture (Figure VII). Pannett[13] has described a number of successful cases in which this method has been employed, but if adequate excision is done the operation must similarly be limited by the mobility of the colon and the arrangement of the blood vessels.

"Pull-Through" Operations.

High Pull-Through Operation (Figure VIII). The high pull-through operation is more applicable to growths in the lower part of the sigmoid. It provides for adequate excision and gives perfect continence, but possesses several disadvantages. Not only are multiple operations required, but the actual pull-through may prove extremely difficult. Furthermore, there is always the possibility of the development of stricture at the site of anastomosis.

Abdomino-Anal Pull-Through Operation (Figure IX). Bacon[1] states that the abdomino-anal pull-through operation can be performed in 75% of the operable cases and the operative mortality rate is only 3·5%; on the other hand, continence is not complete in 50% of cases and the survival rate over five years is only 32%.

From this review it appears that the number of cases suitable for this type of operation is limited and if the surgeon is in doubt radical excision remains the method of choice. However, the possibility of performing such a procedure should always be considered and if necessary the decision deferred until the abdomen is opened. Provided the anatomy of the individual allows, excision and anastomosis or a high pull-through may be

performed when the growth is high. When the growth is in the upper third of the rectum, abdomino-perineal excision and anastomosis or abdomino-anal pull-through may be considered.

The Performance of Preliminary Colostomy.

Colostomy has been frequently performed prior to excision. The particular advantage claimed is that the distal end is completely disconnected so that further operations are performed on a collapsed and clean portion of the bowel.

Although the performance of a preliminary colostomy is desirable when the perineal method of excision is used, there are several objections to its use before perineo-abdominal or abdomino-perineal excision.

First, with the adequate pre-operative treatment in the form of purgatives and bowel wash-outs, defunctioning of the colon in non-sutured

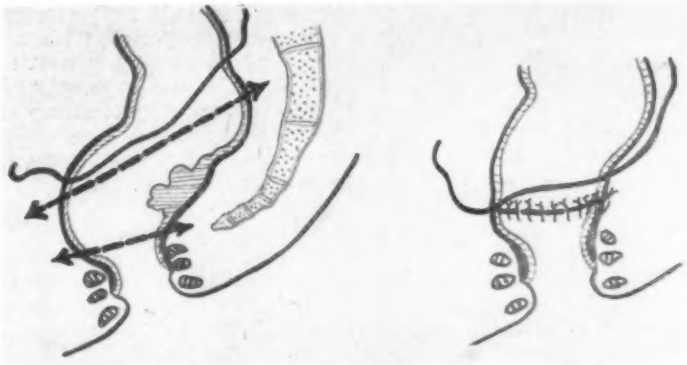

FIGURE V. A diagrammatic representation of the operation of sacral excision and suture. The operation provides limited local excision and should not be performed as a standard procedure for carcinoma.

operations is unnecessary and gives no particular advantages. It is fully recognized that colostomy allows for safe restoration of continuity of the bowel by suture, but this applies more frequently to the colon than to the rectum. Even in regard to the colon there has recently been a swing towards one-stage operations.[10]

Secondly, subsequent operations are not simplified if the pelvic colon has been used for the colostomy and the stoma is situated in the lower part of the abdomen. In fact the detachment of the lower end of the colon from the abdominal wall is quite frequently a difficult and rather messy procedure. It has been frequently stated that the operation can be staged by performing a preliminary colostomy, but it is noteworthy that larger clinics have gradually abandoned its routine use, as it has been realized that it adds to the difficulties of, rather than aids, subsequent operations.

Thirdly, if the transverse colon has been used for the colostomy in an effort to leave a clean field for operation in the lower part of the abdomen, closure of the colostomy is added as an extra stage to the already rather overburdened patient.

It is concluded that when radical resection is intended, preliminary colostomy should be performed only under the following circumstances: (*a*) when acute intestinal obstruction is present; (*b*) when there is gross

chronic obstruction which cannot be relieved by purgatives and bowel washouts, particularly when weight loss has been excessive and the general condition of the patient is not satisfactory.

If colostomy is performed prior to one or other form of radical operation, it is suggested that it should be in the transverse colon, well away from the field of subsequent operations.

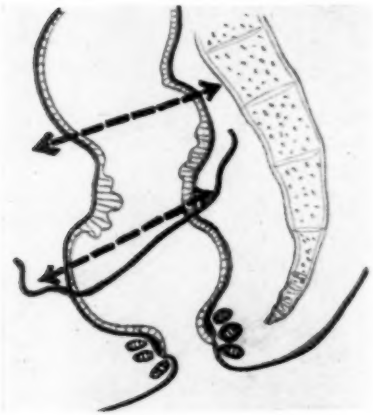

FIGURE VI. Abdominal excision and anastomosis. This procedure is not often possible in growths situated in the rectum.

CONCLUSIONS IN THE MANAGEMENT OF THE OPERABLE OR PROBABLY OPERABLE CASE.

The following conclusions seem reasonable in regard to the management of the operable or probably operable case: (i) Wherever possible the radical type of operation is performed. (ii) Operations for preservation of sphincteric control have only a limited use. (iii) When radical operations are performed preliminary colostomy should be avoided if possible.

The actual choice of operative procedure is a matter for the individual surgeon.

Abdomino-perineal excision is probably the most commonly performed and is undoubtedly an excellent operation in skilled hands. However, in the hands of the occasional surgeon the mortality rate is excessive. The operation should consist of complete abdominal mobilization of the colon and upper portion of the rectum followed by a short, simple, perineal stage. Adequate

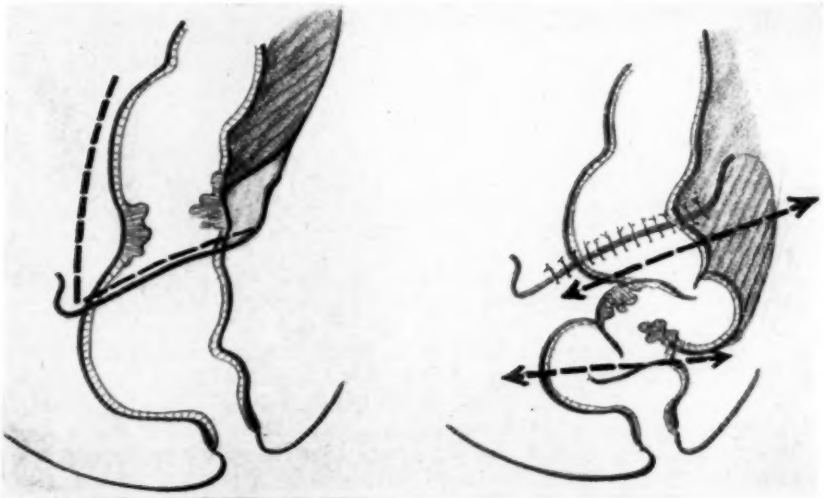

FIGURE VII. Abdomino-perineal excision and suture. The lower part of the pelvic colon and rectum are mobilized and pushed downwards, and the pelvic floor is sutured. Excision and suture are then performed by the perineal route.

abdominal mobilization of the bowel is by no means easy to learn, and it is found that quite frequently it is not complete. Consequently the perineal stage becomes rather prolonged and more extensive. In other words, the operation becomes abdominal and perineal rather than abdomino-perineal.

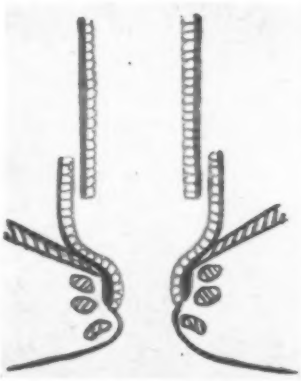

FIGURE VIII. The "high pull-through" operation. A transverse colostomy is performed as a preliminary. The growth is then excised, the lower end of the bowel sutured over and the upper end withdrawn as a left iliac colostomy. Finally, the left half of the colon is mobilized and the iliac colon invaginated into the rectal stump.

In perineo-abdominal excision the major part of the operation, consisting of mobilization of the rectum, is done from the perineum and the abdominal stage is short and straightforward. This method is frequently criticized on the grounds that it is necessary in many cases to open the abdomen first before proceeding with the perineal stages and that this prolongs the operation and necessitates several changes of the position of the patient on the operating table. Furthermore, the "pull-through" of the perineo-abdominal operation may be harder than the "pull-down" of the abdomino-perineal, particularly in an obese male with a narrow pelvis. In spite of these disadvantages the author is of the opinion that this operation is to be preferred, particularly in clinical schools, where the number of cases is small. Not only is the perineal dissection easier for the occasional surgeon to learn than the complete abdominal mobilization required in abdomino-perineal excision, but the operation readily lends itself to a combined approach, where two surgeons operate simultaneously, one from the abdomen and the other from the perineum. The latter procedure undoubtedly simplifies the operation and saves a great deal of operating time. It has been described in detail by Kirschner[20] and Devine.[22] By standardization of technique along these lines the mortality rate for radical operations can be materially reduced, and in a series of 33 personal cases is 15%.

There are many possible variations of the operative procedure, but the following method has been found most satisfactory and very easy to learn. It is only by careful premeditated attention to the pre-operative preparation, the operative technique and post-operative care that a reduction of our rather formidable mortality rate can be obtained.

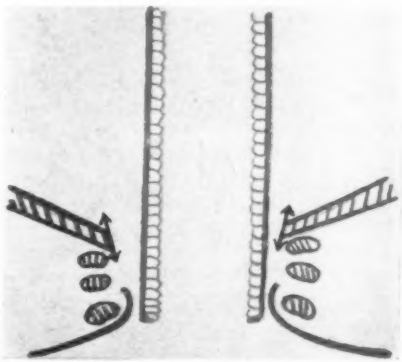

FIGURE IX. Abdominal-anal pull-through or procto-sigmoidectomy. The pelvic colon and upper part of the rectum are mobilized from above. The perineal stage consists of division of the external sphincter and the *levator ani* muscle from within the anal canal and separation of the rectum from the surrounding structures. The rectum and the lower pelvic colon are then pulled downwards and the perineal muscles are resutured.

THE PRE-OPERATIVE TREATMENT.

Local records show that there has been no routine planned pre-operative approach to the problem. In fact, pre-operative treatment has often been inadequate and rather haphazard. It

is true that the young or middle-aged patient is frequently in a satisfactory general condition, but the same cannot be always said of the elderly person, and all are benefited by the following routine, which has been used in the author's series.

1. The patient is admitted to hospital ten to fourteen days before the time fixed for operation. The greater the loss of weight, the longer the period of time required.

2. Hypoproteinæmia and vitamin deficiency may be present. Therefore, the diet should be of high calorific value with high protein content and added vitamins, particularly vitamin *C*. Unlike patients with alimentary carcinomata situated at a higher level, such as the stomach, these patients are able to absorb their requirements orally and to show marked improvement by the use of a suitable diet. During the thirty-six hours before operation a non-residual diet is given.

3. The preparation of the bowel consists of the oral administration of half an ounce of paraffin by mouth three times a day and a daily bowel washout. This routine is continued until twenty-four hours before the operation.

4. Sulphaguanidine is administered for five days, a start being made one week before the operation. The dosage is 12·5 grammes a day for two days and then 8·0 grammes for three days. Sulphasuccidine, which is probably more effective, has not been available.[1]

5. The blood group is determined and an estimation of the hæmoglobin value and serum proteins is made. A hæmoglobin value approximating to 90% is advisable prior to operation. If necessary a blood transfusion is given.

6. The urine is examined microscopically and by culture methods. If pathogenic bacteria are present sulphonamide drugs are administered.

7. In females vaginal douches are given for three days before operation.

8. On the morning of the operation a rubber catheter is tied in and strapped to the right thigh.

THE GENERAL PLAN OF THE OPERATION.

Anæsthesia.

The anæsthetic agent employed in the majority of cases in this series has been ether. Most surgeons favour spinal anæsthesia or a combination of spinal anæsthesia and general anæsthesia, but it is the opinion of the author that the patients have done better under general anæsthesia alone. Ether provides adequate relaxation and produces no fall in blood pressure, a feature of some importance in an operation of this magnitude.

The Operating Team and the Allotment of Work.

The operating team consists of two surgeons. The allotment of work between the two is subject to considerable variation by different operators, but the essential is to develop a definite routine. The procedure which has been adopted here is as follows.

The senior surgeon who is in charge of the whole procedure performs the perineal stage of the operation. After the bowel has been pulled through, he transfers his attention to the abdomen and completes this stage of the operation by ligating the inferior mesenteric vessels at the appropriate level,

[1] Sulphasuccidine is now available and has been used prior to operation in recent cases. The dosage is similar to that of sulphaguanidine.

dividing the ascending limb of the pelvic mesocolon, suturing the peritoneum of the floor of the pelvis and making the colostomy. The assistant surgeon performs the laparotomy, divides the peritoneum on either side of the pelvic colon and upper portion of the rectum and exposes the left ureter. He guides the senior surgeon in opening the peritoneum of the pelvic floor and receives the bowel as it is pushed through. He then assists in the completion of the abdominal operation and whilst the senior surgeon is making the colostomy he closes the abdominal wound.

The Method of Approach.

1. In borderline cases and in cases in the upper third of the rectum, when the growth is not palpable throughout its extent, the abdomen is

FIGURE X. The commencement of the operation of simultaneous perineo-abdominal resection of the rectum. The patient is in the lithotomy position with the right leg flexed and abducted. The senior surgeon is about to commence the perineal stage of the operation. The assistant surgeon is standing on the right-hand side of the patient and is about to open the abdomen through a right paramedian incision.

opened first in order that the surgeon may assess operability before proceeding with the operation.

2. The abdominal and perineal operations are performed simultaneously when the tumour is mobile and readily palpable throughout its extent.

The Position of the Patient on the Operating Table.

During the perineal stage of the operation the patient is put into the lithotomy position. The right leg is slightly flexed and abducted to allow the assistant surgeon adequate room. The buttocks are raised and project over the end of the operating table. The left arm is outstretched for the intravenous administration of fluid. After the bowel has been pulled through and the perineal wound has been packed and sutured, the patient is placed in a high Trendelenburg position and the abdominal stage of the operation is completed.

THE OPERATIVE TECHNIQUE OF PERINEO-ABDOMINAL EXCISION OF THE RECTUM.

The steps of the operation are as follows (Figure X).[1]

The Perineal Stage.

After closure of the anus with two pursestring sutures, an elliptical incision skirting close to the anal margin and extending up to the sacro-coccygeal joint is made. It has been found better from the point of view of subsequent healing to incline the wound posteriorly somewhat to one side. The coccyx, if prominent, is disarticulated and the levators are divided in a forward direction on either side (Figure XI). The anterior dissection is best approached from the sides by cutting through the fibres of the pubo-rectalis muscle.

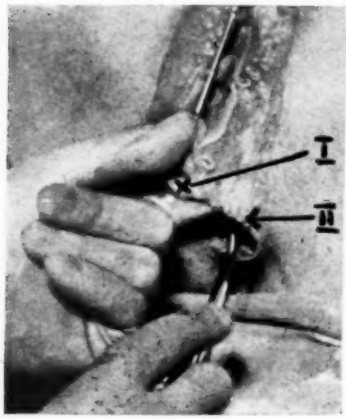

FIGURE XI. The mobilization of the left-hand side of the anal canal and rectum. The coccyx (I) has been disarticulated and the index finger hooked under the *levator ani* muscle (II), which is then divided in a forward direction.

These fibres are closely applied to the rectum, but can be made to stand out quite readily by hooking the finger under them. Once they are severed, the correct plane of cleavage is easily found, and after division of the recto-urethralis muscle the rectum can be stripped away from the prostate and bladder or from the vagina. In the male the catheter is a useful guide to the situation of the urethra and in the female the exploration is simplified by inserting the fingers of the left hand into the vagina. It is essential to define the correct plane posteriorly. This is done by dividing the fascia of Waldeyer, which is seen passing from the rectum to the sacro-coccygeal region. The rectum is now covered with a rubber glove, which is tied on with stout linen, care being taken to express the air from the glove before it is tied in position. The peritoneum of the pelvic floor is now divided, with the fingers of the assistant surgeon acting as a guide (Figure XII). It is cut up laterally as far as possible, the incision being kept close to the bowel. Finally the lateral ligaments are divided on either side and the rectum is pushed into the pelvis (Figure XIII), where it is received and gently delivered by the second surgeon by traction on the fingers of the glove rather than on the linen tie. The perineal cavity is swabbed out and sprayed with sulphanilamide. It has not been the custom to use sutures in the depths of the cavity in the belief that the wounds heal more

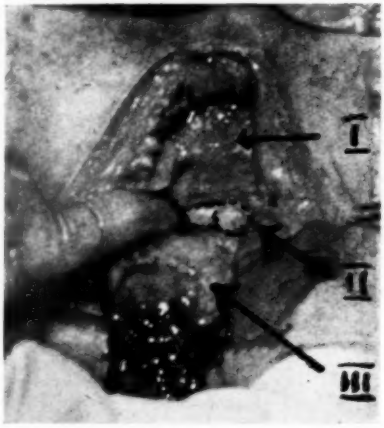

FIGURE XII. The rectum (III) has been separated from the urethra, prostate and bladder (I). The peritoneum of the pelvic floor has been divided, the fingers of the assistant surgeon (II) acting as a guide.

[1] Figures X to XIX have been taken from a motion picture of the operation.

quickly if left open. A sheet of oiled silk is inserted and the cavity packed with cotton wool, which readily controls any oozing. The posterior third of the wound is sewn up, alternate vertical mattress sutures being used to avoid infolding of the skin.

The Abdominal Operation.

When the abdominal operation is performed simultaneously with the perineal the assistant surgeon opens the abdomen through a right paramedian incision. This side is chosen to keep the wound as far away as possible from the colostomy. After the intestines have been packed off, the peritoneum is divided along the lower part of the pelvic colon and the rectum (Figures XIV and XV). It is advisable from the point of view of subsequent closure to divide it fairly close to the bowel. The commonest mistake of the inexperienced surgeon is to cut it too far out on the left side. It is advisable at this stage to identify the left ureter (Figure XVI). After the rectum is received the bowel is stripped up to the brim of the pelvis whilst the other surgeon is completing the perineal stage. The patient is now placed in the Trendelenburg position and the inferior mesenteric vessels are divided between two ligatures close to the apex of the pelvic mesocolon (Figure XVII). The ascending limb of the mesentery is then divided between forceps (Figure XVIII) and the V-shaped gap which exists in the peritoneum of the floor of the pelvis is sutured, the stump of the mesentery being buried. An ellipse of skin is excised well out in the left iliac fossa and the muscles are split along the lines of their fibres. As an additional aid against stenosis a small nick is made on either side of the external oblique muscle at right angles to the incision therein. The bowel is then pulled through and anchored to the upper and lower corners of the peritoneal incision. The exteriorized bowel is cut across between Kocher's forceps, two inches outside the abdomen (Figure XIX). The marginal vessel, which has been carefully preserved, is ligated at this level.

FIGURE XIII. The rectum has been covered with a rubber glove and tied in position with stout silk and is pushed upwards into the pelvis.

THE POST-OPERATIVE TREATMENT.

Replacement of Blood Loss and Prevention of Shock.

There is no doubt that radical operations on the rectum are accompanied by appreciable blood loss and the possible development of shock. In this series fluid and blood were given originally by the intravenous route during or after the operation if required. It is now considered far better to take adequate precautions for the replacement of blood loss and the prevention of shock than to be presented with an acute surgical emergency. The following routine has been found eminently satisfactory.

1. Intravenous administration of 5% glucose and normal saline solution is commenced just prior to the administration of the anæsthetic agent.

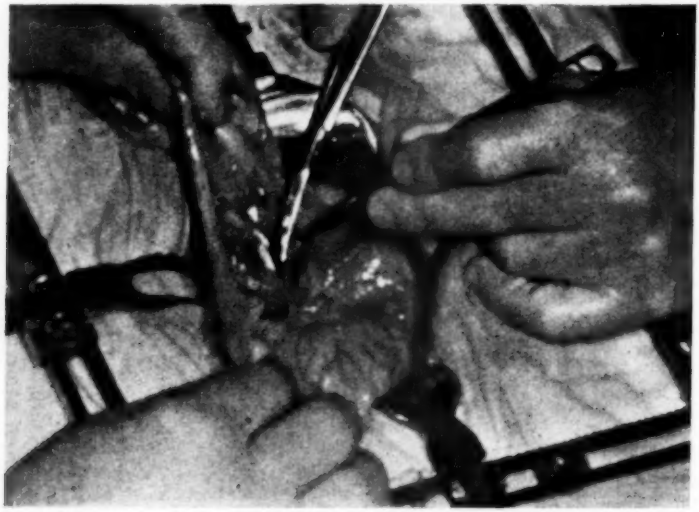

FIGURE XIV. The peritoneum is divided on the right-hand side of the rectum and pelvic colon as far as the apex of the V of the mesocolon.

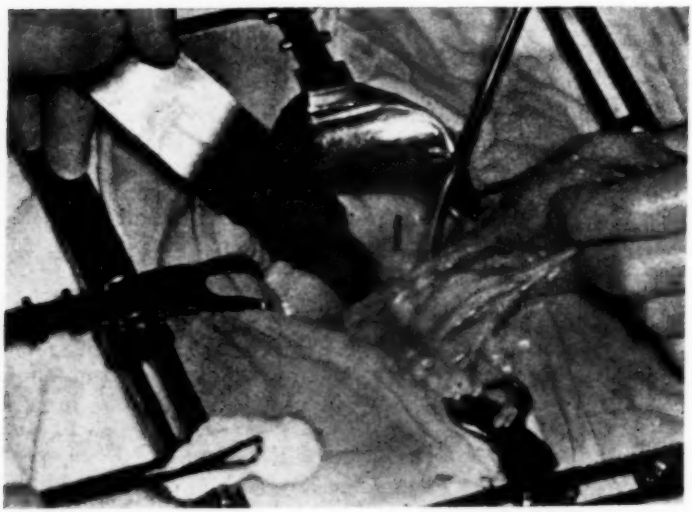

FIGURE XV. Division of the peritoneum on the left-hand side of the rectum and pelvic colon. Close at hand in this region lies the ureter.

2. One thousand cubic centimetres of blood are given during the operation, preferably just prior to the pull-through of the bowel.

3. The hæmoglobin value is estimated three hours after operation and if it is found to be reduced 10% on the pre-operative level further blood is given.

4. Solutions of 5% glucose and normal saline solution and 5% glucose solution are given intravenously alternately for thirty-six hours after the operation at the rate of 1,000 cubic centimetres in eight hours.

5. The hæmoglobin value is estimated twenty-four hours after the operation and if it is below 80% further blood is administered.

In the average case no further intravenous therapy is necessary. If required, it is given with due regard to the hæmoglobin value, the serum protein content and the blood chloride content.

The Diet.

Fluid intake by mouth is limited to sips of water for thirty-six to forty-eight hours following the operation. Provided the pulse rate is not raised and there is no vomiting or abdominal distension, a light diet is then given.

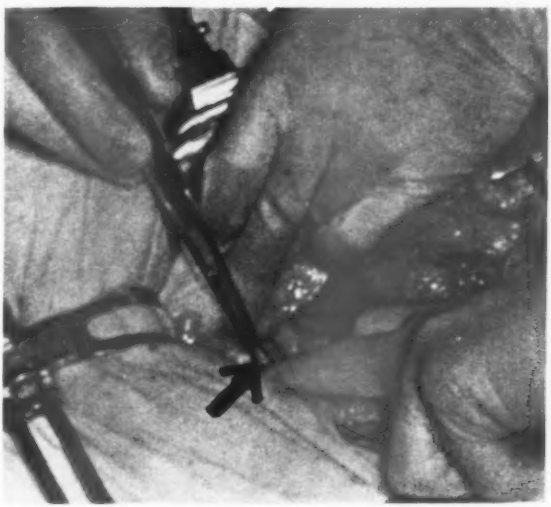

FIGURE XVI. Exposure of the left ureter.

The Bladder.

Retention of urine commonly develops and it is considered better to anticipate it. In females a self-retaining catheter is left in the bladder for forty-eight hours and then removed. After this period the patient usually passes urine normally. In males over fifty years of age retention frequently continues for a longer period of time and the catheter is best left in for five to seven days. Tidal drainage or continuous drainage with intermittent lavage as described by Dukes[22] is the best method of preventing bladder infection.

The Colostomy.

The clamp is removed from the colostomy twenty-four hours after the operation and a finger is passed into the lumen. Liquid paraffin is administered three times a day from the third day until the colostomy is open. Bowel actions are frequently delayed, but provided there is no gross distension, this should cause no alarm even after the lapse of a week or more. Once the colostomy opens it usually does so to excess for a few days. Routine bowel wash-outs are commenced in the third week.

The Wound.

The packing is removed on the second day and the cavity is irrigated with "Dettol" and normal saline solution. Towards the end of the first week there may be a rather dirty discharge, which is readily cleared up by irrigating with hydrogen peroxide in addition to the "Dettol" and saline solution. No further packing is placed in the wound save a loose, greasy dressing inserted just into the skin opening to keep the edges apart. The surrounding skin is smeared with zinc cream and one single large pad, twelve inches square,

is applied to the wound. Multiple small pads slip and often do not adequately cover the wound. The dressing is best kept in place by a triangular bandage which has a small length of four-inch bandage sewn to the apex of the "V".

POST-OPERATIVE COMPLICATIONS.

Paralytic Ileus.

Paralytic ileus is one of the more common post-operative complications and is the commonest finding in post-mortem records. The treatment follows routine lines with stomach decompression and intravenous therapy.

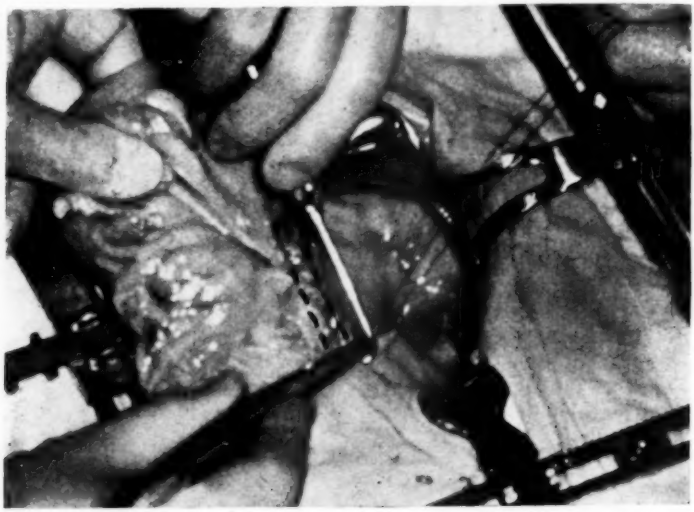

FIGURE XVII. Division of the inferior mesenteric vessels. No attempt is made to dissect out the individual vessels and the division may pass between the first and second and first and third sigmoid vessels.

Retention of Urine.

Persistent retention of urine is a most important complication. In the author's cases it developed in two females (one had undergone perineal excision and one perineo-abdominal excision), but in the main it develops in males over fifty years of age.

The origin of the condition has been the subject of discussion in recent literature.[23][24][25] It is usually stated that it arises from division or contusion to the nerve supply of the bladder, but Coller and Eastman[23] have shown that this is uncommon, provided the correct plane of excision is observed, particularly posteriorly. The important factor appears to be an alteration of the anatomical levels of the bladder neck and urethra, consequent on division of the *levator ani.*[25] This is particularly important in the elderly male, when it is realized that many of the patients have a potential organic bladder-neck obstruction from prostatic enlargement and that the alteration in the anatomy following the operation may be sufficient to unmask the condition.

The treatment consists in continued catheter drainage with strict attention to asepsis. The majority of cases respond to this method of treatment alone. When the patient passes urine naturally it is advisable to continue with the intermittent passage of a catheter until there is little

if any residual urine. When the retention persists for some weeks, more active treatment is necessary. This may take the form of suprapubic cystostomy or removal of the prostate, preferably by the method of transurethral resection.[21] The author has had experience of one case in which treatment by the latter method had a most satisfactory result. It is noteworthy that the amount of prostatic tissue that requires resection is very much smaller than in the average case of benign prostatic hypertrophy presenting for operative treatment.

FIGURE XVIII. The ascending limb of the mesocolon is divided. In order to ensure the viability of the colostomy it is important to preserve the marginal vessels.

The Colostomy.

1. Gangrene of the exteriorized portion of the colon may occur. This is avoided by leaving sufficient mesentery with an intact marginal vessel attached to the bowel. Fortunately the gangrene seldom extends proximal to the peritoneal level. It is solely due to an error in technique and can be prevented by suitable care.

2. Recession of the bowel is avoided by leaving sufficient bowel exteriorized without tension. Approximately one and a half to two inches should be left protruding at the termination of the operation. If recession develops the only satisfactory measure is to remake and elevate the colostomy.

3. Stenosis of the colostomy opening is caused by recession, infection and insufficient skin excision. Although operations have been employed to make the opening wider, undoubtedly the most satisfactory procedure is to remake the colostomy completely by excising the skin around it, opening the abdomen, mobilizing the colon and exteriorizing an adequate length with preservation of the marginal artery.

Wound Infection.

1. The perineal cavity. Gross infection of the perineal cavity seldom develops. The commonest untoward complication is sloughing of the posterior part of the wound over the sacrum, particularly in the aged. This is a part

which is subject to pressure, no matter how much care is taken in the posturing of the patient. Making the wound slightly eccentric seems to be of value in the prevention of this complication.

2. The abdominal wound. The placing of the abdominal wound on the right-hand side away from the colostomy is of considerable value in preventing infection. Additional aids are the use of strapping over the wound at the completion of the operation and the use of a strapping shelf between the wound and the colostomy after the removal of the sutures.

Intestinal Obstruction.

Intestinal obstruction of mechanical origin may develop as a result either of the coils of bowel slipping down to the outer side of the colostomy or of adhesion of the bowel to the suture line in the pelvic floor. With regard to the former cause, it should be noted that if no colostomy cups are to be prescribed subsequently, the colostomy is best made well out towards the iliac crest so that no space exists between the terminal part of the colon and the peritoneum of the iliac fossa. If this is not done, this space should be obliterated by sutures. Similarly, careful suturing of the pelvic floor minimizes mechanical obstruction in this site. If the complication develops, operative treatment is, of course, necessary.

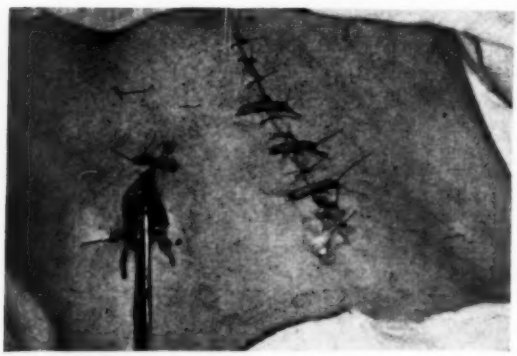

FIGURE XIX. The completion of the abdominal operation. A colostomy has been performed in the left iliac fossa and a clamp applied to the exteriorized bowel.

THE MANAGEMENT OF THE COLOSTOMY.

Adequate management of the colostomy is often woefully neglected in the after-treatment of these patients. If the decision of the surgeon regarding the operative procedure required leaves the patient with a permanent artificial anus, every effort should be made to make the patient as comfortable as possible. A badly constructed, ill-managed, incontinent and foul-smelling colostomy makes life a real misery to the patient. On the other hand, with adequate interest and care on the part of the surgeon there is no reason why these patients should not lead a normal social existence, a fact which has been particularly emphasized by Lahey[25] and Cattell.[26]

Many attempts have been made to use plugs in the colostomy opening to make it more or less continent at will. When the mucosa joins the skin surface, plugs are unsatisfactory. Rank[27] has made preliminary skin tubes to which the colon is sutured, and apparently in these cases plugs work very well. This procedure involves a preliminary transverse colostomy in order to divert fæcal flow during anastomosis.

In the usual type of colostomy in which mucous membrane adjoins the skin there are two methods of regulation of bowel habit:

1. The bowel is allowed to act spontaneously and regularity is encouraged by control of the diet. In many cases, after the passage of time, the colostomy does begin to act regularly, and certainly this method entails little bother.

Continence is, however, seldom complete and the patient sometimes does not acquire the confidence necessary for pursuing normal social activities.

2. The use of routine bowel wash-outs is the second method. Undoubtedly if bowel wash-outs are regularly and adequately performed, the colostomy will become continent. This method has been criticized on the grounds that it is time consuming to the patient and may after a period of time cause the patient some pain during and after the wash-out. However, with correct training the time taken should not be more than thirty minutes a day. Moreover, in the author's experience there has been no complaint of discomfort, even when the method has been employed for over ten years.

This procedure has been adopted in all cases in the present series with eminently satisfactory results from the point of view of the patient. The essentials for successful management are: (i) The wash-out must be given at the same time each day. (ii) The patient must be fully instructed so that he is able to proceed without assistance and hence avoids becoming a chronic invalid. (iii) Mess must be avoided so that the household is not disrupted by extra washing or cleaning. (iv) The following routine is adopted. The bowel wash-out is performed either by the use of a Higginson's syringe or douche can and tubing with stop-cock. The patient is seated in a chair next to a lavatory or a bucket. Two pints of water are run in, preferably through a rectal tube rather than a catheter, and are quickly allowed to drain out. Two more pints are then injected and an interval of twenty minutes is allowed to elapse for complete drainage. In order to avoid the use of a kidney dish, a curved glass cylinder two inches in diameter and approximately twelve inches long is placed over the colostomy after withdrawal of the rectal tube and the fæcal drainage is directed towards the lavatory or bucket.

With regard to the covering of the colostomy, it is considered that the routine use of colostomy cups is to be deprecated. If anything, they encourage incontinence. When the bowel is washed out regularly, all that is necessary is a pad of wool placed over the colostomy, kept in place by a fashioned body belt made of linen or calico with a perineal strap to prevent upward riding.

Diet is of undoubted importance in these cases. In the early post-operative stage a low-residue diet is advisable. In the later stages of convalescence, whilst the patient is still confined to hospital, it is usually necessary to reduce the fluid intake and to limit the consumption of fruit and vegetables, particularly those of the leafy variety. In hospital the commonest causes of continued incontinence of the colostomy are an excess of fluids and fruits, particularly fruit drinks. Strangely enough, continence which has been only moderate whilst the patient is in hospital is frequently obtained when the patient returns home. At a later stage it is usually possible for the patient to eat or drink anything without ill effect.

SUMMARY.

1. An analysis of the records of carcinoma of the rectum in three teaching hospitals in Melbourne is presented.

2. The means whereby the operability rate and the mortality rate could be improved are suggested.

3. The use of colostomy in cases regarded as inoperable is discussed.

4. Combined perineo-abdominal excision without preliminary colostomy is recommended as the method of choice in the majority of cases.

5. The importance of the pre-operative and post-operative treatment is stressed.

6. The post-operative complications are discussed, with particular reference to bladder dysfunction and to complications arising from the colostomy.

7. The care of the colostomy is described in detail.

ACKNOWLEDGEMENTS.

The author's thanks are due to the Royal Melbourne Hospital, the Alfred Hospital and Saint Vincent's Hospital for providing him with details of case records.

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Case Report.

STRICTURE OF THE COMMON BILE DUCT: A METHOD OF REPAIR.[1]

By Leo Doyle,
Melbourne.

Stricture of the common bile duct, especially when following upon what was thought to be a simple cholecystectomy, is one of the great disasters of surgery. It means that a moderately simple condition is exchanged for a condition associated with a large mortality and requiring great skill for its successful treatment.

Surgeons who have attempted to treat this lesion have always a tale to tell of difficulties met which have sometimes been overcome and sometimes not. The writer's experiences with one such case are now being presented for the edification of those who have yet to get into this trouble.

M.M.T., a female, aged fifty-four years, married, was admitted to hospital complaining of jaundice which fluctuated in intensity, was occasionally associated with shivers and dated back to a cholecystectomy and choledochostomy for multiple calculi, done in the country two and a half years previously. Beyond the jaundice nothing noteworthy was observed on examination. The patient's blood urea content was 23 milligrammes *per centum*, the chloride content was 486 milligrammes *per centum*, the plasma protein percentage was 7·2, and the hæmoglobin value was 90%. The usual treatment was given to improve the clotting power, and on October 7, 1945, operation was undertaken.

The abdomen was opened through the old Kocher's incision and the common duct was exposed without any great difficulty. The duct was opened and many small stones were found. It was then explored with a bile-duct probe and a stricture about 5·0 to 7·0 millimetres long with a lumen of 1·0 to 2·0 millimetres was found. There was some difficulty in freeing the distal part and it was decided not to persist with this, but to perform a plastic operation on the stricture. This was accomplished by sewing transversely the existing longitudinal incision. No drain was put in the duct, but an area drain was passed through a stab wound in the loin. Omentum was stitched over the common duct and the wound was then closed.

At the time this seemed a reasonable procedure, but subsequent events showed that the confidence felt was not justified. The eventual autopsy disclosed quite an adequate amount of undamaged and apparently normal common duct lying below the stricture, and there is no doubt that had this been further investigated at the time of operation it would have been possible to excise the stricture and to carry out an end-to-end anastomosis. There would appear to be little doubt that this is a procedure that has many advantages over that chosen.

After operation much bile came from the area drain and the jaundice did not improve. The jaundice deepened despite a copious biliary discharge, and the patient's temperature continued to rise. It was decided to operate again, and after penicillin treatment for twenty-four hours the abdomen was again opened some twenty-one days after the first operation.

The original wound was reopened and some bile-stained pus found in the wound. The omentum was separated and the *porta hepatis* exposed, but despite a long search, in which all the usual methods were used, no traces of the common duct could be found. Eventually, while a search was being made in the *porta hepatis*, an opening was found, or perhaps made, into which a bile duct probe could be passed for an inch or so and from which bile oozed freely. Time was passing and as the patient was quite frail an indefinite period could not be spent on further search, so it was decided that this opening was into the common bile duct, or at worst communicated freely with it.

Such was the state of affairs, and the next problem was to find a means by which this bile-emitting opening could be made to discharge into the intestine. The usual methods of achieving an opening into the duodenum were impossible owing to the fixity of all the structures in the neighbourhood, and so some alternative means had

[1] Accepted for publication on November 21, 1946.

to be found. It was decided to adopt and to modify the technique used in œsophago-jejunostomy after a total gastrectomy.

A loop of jejunum, about two feet past the duodeno-jejunal junction, was taken and adjusted until its apex lay comfortably at the bile duct orifice. An Allis forceps was then placed at the point as a marker. A rubber tube which fitted snugly into the bile duct orifice was passed into the jejunum at the apex of the loop and brought out about six inches lower down, after a few holes had been cut into that part of the tube which it was expected would lie inside the jejunum. The jejunum was then threaded along the tube until the apex of the loop arrived at the *porta hepatis*. This was sutured there by a series of interrupted cotton sutures so that the hole into the bile duct now communicated directly with the jejunum over the tube. The jejunal peritoneal coat, at the spot where the tube emerged, was sutured round the tube. An entero-anastomosis between the afferent and efferent loops of jejunum was done so that there might be no obstruction. The tube was then brought out through a stab wound below the Kocher's incision. An area drain was passed to the anastomotic site and the wound closed.

The patient was very shocked, but responded well to the usual treatment. She had a few coloured motions, but there was still a copious bile drainage from the area drain. After some ten or twelve days the tube was loosened and gradually became freed and was removed. It was hoped that when it passed out the bile would drain into the jejunum. This, however, did not happen and the patient continued to be jaundiced. She had some suppuration in her abdominal wall and eventually developed a bile-stained vaginal discharge. Pelvic examination did not disclose any mass. After two months she died and autopsy showed that bile had drained from the anastomosis down the right paracolic gutter and formed a pelvic abscess. The anastomosis was to the side of the bile duct but had apparently worked very badly. The duct below the stricture was in good shape.

Despite this failure, it is suggested that the method is one which may on occasion provide a means of achieving a choledocho-intestinal anastomosis when the better methods are not available. The primary mistake in this case was made at the first operation, when, with the structures readily definable, an adequate repair should have been done.

The Australian and New Zealand Journal of Surgery.

All articles submitted for publication in this journal must be typewritten and double or treble spacing should be used. Each article should conclude with a brief summary and statement of conclusions. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

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When illustrations are required, good photographic prints on glossy gaslight paper should be submitted. Line drawings, charts, graphs and so forth should be drawn on thick white paper in indian ink. Authors who are not accustomed to prepare drawings of this kind, are invited to seek the advice of the Editor if they are in any doubt as to the correct procedure. Skiagrams can be reproduced satisfactorily only if good prints or negatives are available.

VOL. XVII. OCTOBER, 1947. No. 2.

COMMONWEALTH TRAVELLING PROFESSORSHIP.

IMPERIAL UNITY is no empty phrase. It is a vital expression of something deep down in our hearts—an urge of peoples who have a common heritage of blood, of freedom, or of culture, to work together for the ideas which they know are of value not only to their own countries, but to the world. The urge to stand together, which is manifested in economics in peace-time, and in defence in times of danger, shows itself most strongly in cultural relationships, and among those cultural relationships the bonds are particularly strong between practitioners of medicine and between the corporate bodies which represent them. Scientific and medical workers realize that they have much to gain from an exchange of visits, and this is brought home to them most strikingly when distinguished teachers and investigators from one country meet their colleagues in others. Personal contacts and the spoken word are far more stimulating than published writings. Not only are closer personal links forged between workers from different seats of learning and centres of research, but the peoples of all countries benefit.

Moreover, clinicians and scientists by exchanging visits get personal knowledge of the institutions which their colleagues serve, and they develop feelings of respect for each other's traditions. After all, as Stevenson wrote: "The knowledge that another has felt what we have felt and seen things even as they are, little things, not much otherwise than we have seen them, will continue to the end to be one of life's choicest pleasures."

For undergraduate and graduate students of all faculties there are intangible bonds which bind them to their *alma mater,* but in the world of medicine there is a wider adherence, for they are members of a great

profession which knows no frontiers. They have not only the associations of youth and the precious friendships made in those impressionable years, but they have an attachment to and pride in the honourable line of scientific men whose names add lustre to the annals of medicine. This attachment can be fostered not only by young men travelling to other countries, but also by the exchange of visits of leading teachers.

Many gifts have been made to enable young men to visit other centres, but there has been no financial provision to assist leading teachers to undertake lecture tours. These have been undertaken by some men, but generally at their own expense. The generous gift of Mr. Arthur Sims to provide for the endowment of a Commonwealth travelling professorship is therefore of deep significance. It is welcome from many points of view, but particularly from those of imperial unity and the advancement of medical science. The professors who will be most useful will generally be those who are still actively engaged in clinical or scientific work. They should not be expected, however, to absent themselves from their own clinics or laboratories without being given some official appointment of distinction and an adequate honorarium to cover expenses and provide some compensation for disturbance. This is now provided by the Arthur Sims Foundation. The endowment provides an annual sum of £2,000 sterling. The holder of the office is to be appointed each year by a board of advisers composed of the presidents of the Royal College of Physicians of London and the Royal College of Surgeons of England and the Royal Australasian College of Physicians and the Royal Australasian College of Surgeons, with power to add to their number. A wide discretion is left to the Board in laying down the duties of the professor appointed each year. The primary object is to arrange for courses of lectures to be delivered in the centres visited.

The idea of a travelling professorship originated in 1939. Mr. Neville Chamberlain was then Prime Minister in the United Kingdom, and when informed of the project he wrote: "I am very much interested to hear of the proposal that a travelling professor shall be appointed every year to deliver courses of lectures in the principal medical centres of the Commonwealth. I feel sure that such an arrangement will be of great value to medical science and will also be an important contribution to imperial unity. I wish the scheme every success."

When Mr. Sims's gift was announced in November last year, the King, as visitor of the Royal College of Surgeons, was informed, and, in reply, a letter was received stating that His Majesty "was greatly interested to hear of Mr. Arthur Sims's generous gift, and felt sure that the proposed travelling professorship would be of great value to the further development of medical science throughout the Commonwealth and Empire". The Prime Minister, Mr. Attlee, wrote: "The endowment is both munificent and far-sighted. It is a gesture which shows a real appreciation of both the needs of medicine and science and of the British Commonwealth. Progress in the world of medicine, surgery and of science has been very remarkable in recent years, and during the war we owed the greatest debt to doctors, surgeons and scientists drawn

from all over the Commonwealth. The British peoples must remain in the forefront of advance in these fields, and one of the most effective ways of ensuring this is by encouraging the interchange of knowledge. For this reason I warmly welcome the creation of this travelling professorship.

"I am sure we can rely on the Electors of this Chair to select professors who possess the highest qualifications. The best is required. In this way advantage may be taken of a valuable opportunity to increase amongst our men of science knowledge of the work that is going on in different parts of the British Commonwealth and of their fellow workers overseas."

The originators of the scheme have their firm convictions strengthened by these encouraging commendations and they have no doubt that the foundation of the Arthur Sims Commonwealth Professorship will achieve the purpose which the donor has in mind. They are certain that exchanges between the leading medical teachers of the Empire will bear rich fruit. Great hopes are based on the opportunity which Mr. Arthur Sims has provided. He has done a great thing for the Commonwealth and for medicine.

ALFRED WEBB-JOHNSON.

Surgery in Other Countries.

[In this column will be published short résumés of articles likely to be of practical value from Journals published in other countries and not readily accessible to surgeons in Australia and New Zealand.]

MYELOID TUMOURS OF BONE.

R. Loicq, P. Cogniaux and A. Van Wien: "*Le traitement radiothérapie des tumeurs à myéloplaxes: Resultats*", *Revue de chirurgie*, Volume lxv, January, 1946.

In 1931 Murdoch presented before the *Société de Chirurgie* of Brussels the first three cases of myeloid tumours treated by radiotherapy in Belgium. Since then argument on the relative value of surgery *versus* radiotherapy has run high, ranging from Coley's statement that: "The bad results of radiation of myeloid tumours are rarely mentioned, yet I believe that they are more frequent and more grave than are those which follow surgery", to Ewing's remark: "Never call in a surgeon to treat a myeloid tumour". The present authors make this report on 30 tumours which they have treated by radiation at the *Centre des Tumeurs* in Brussels in the last fifteen years. Twenty-five were in long bones and five in the maxilla. Epulis, which although rich in myeloid cells has a different origin and course of evolution from myeloid tumours, has been excluded, as also has the group of myeloid tumours of tendinous origin.

Their clinical study conforms in all ways with the classical picture except in the one rather striking respect that there was an almost total absence of tumours in the upper end of the tibia. Nearly all the tumours were situated in the epiphyses, but four were metaphyseal in site. These four presented a difficult diagnostic problem. Are they true myeloid tumours, acute bone cysts, localized manifestations of Recklinghausen's disease or osseous xanthomata? The authors come to agreement with Geschickter and Copeland that, though the tumours resemble acute bone cysts in their situation, they are myeloid tumours in their histology. They are difficult to treat. Their radiosensitivity is less than that of epiphyseal myeloid tumours, but much greater than that of bone cysts. Recurrences are frequent after radiotherapy or surgery. The blood chemistry findings distinguish them from xanthomata and Recklinghausen's disease, and they are classed as myeloid tumours occurring in the metaphysis.

The radiological appearance of myeloid tumours is well known, but in one point care must be taken. At the stage at which the tumour has burst through the limiting cortical barrier it is no longer visible in outline among the soft tissues and it may thus be mistaken for a malignant tumour. The absence of periostitic reaction is thus of importance in studying radiographs. Clinical and radiological appearances are usually sufficient to establish the diagnosis, and biopsy should seldom be necessary. Seeing that though radiotherapy avoids most of the dangers of surgery, it does deprive the surgeon and the patient of that histological certainty which is so comforting, it is important that the diagnosis should be clinically very well established, so that there shall be no feeling that by the use of radiotherapy the patients are put at any disadvantage. Radiotherapy, however, provides a therapeutic test of its own. Sarcomata, after one or two sessions of radiotherapy, show a functional improvement, although the X-ray appearances remain unaltered. With myelomata, however, the first effect of radiotherapy is a subjective worsening of the symptoms of pain and congestion, which passes on later to comfort and cure. The growth in the tumour immediately after irradiation may be mistaken for malignant extension or metastasis, but it soon assumes the characteristic honeycomb appearance. Biopsy will resolve all doubts, and where doubts exist biopsy should be used in spite of its supposed danger of spreading the disease; but it should rarely be necessary.

There are reported in the literature occasional cases in which sarcomatous degeneration of a myeloid tumour appears to have occurred following local recurrences. These cases are very rare, and their very existence in fact is doubted by many. The metastases reported have never reproduced the structural type of the myeloid tumour, and the primary tumour has never been proved beyond doubt to be myeloid. Most of them must be assumed to have been sarcomatous from the start. Geschickter and Copeland consider that any malignant change that may be found is the result rather than the cause of previous ineffective therapy. Codman, from the Registry of Bone Sarcomas, admits a malignant change from a myeloid tumour as a possibility of the rarest kind. The possible occurrence of such a transformation should not be allowed to stand in the way of a beneficent and conservative line of treatment, such as radiotherapy.

No one would deny the good results that surgery has achieved in this condition, but even the most ardent advocate of surgical treatment is content to resign to radiotherapy tumours too deeply placed or too far advanced for effective surgery. There is an operative risk in surgery, and a recurrence rate varying from 20% to 40%. Radiotherapy, on the other hand, knows no contraindications. It is free from risk and does not as a rule require that the patient should be confined to bed. In the early days, when myeloid tumours were classed with the sarcomata, they were heavily overdosed, and many unpleasant sequelæ occurred then which are not seen with modern treatment. There should be no serious local reaction, and the skin remains soft and normal. In young children the epiphyseal cartilage may be damaged and some defects of growth have been recorded. It has not been enough to cause disability.

The radiosensitivity of myeloid tumours varies, but the total dosage to be given rarely exceeds 2,400*r*. Herenden advises three sessions of 600*r*, each separated by a month's interval and controlled by skiagrams. This technique obtains some excellent results without risk, but it requires undue patience on the part of both patient and doctor. Up to 1935 it was the technique followed at the *Centre des Tumeurs* (applications of 600*r* to 800*r* repeated two or three times at intervals of two or three months). Some patients were cured by the first treatment, but most of them required the full course. As supervision was not easy and it was not uncommon to find the patient discouraged by the apparent failure of the first or second dose, it was decided to alter the procedure and to give from 800*r* to 2,000*r* in a series of consecutive sessions of 200*r* each, according to the age of the patient and the circumstances of the case. This technique has given excellent results and only twice has it had to be repeated.

The material is 30 tumours in 29 patients, of whom one was incompletely observed and is discarded. Two patients were irradiated after incomplete surgical removal, and two had recurrences after operative removal. All the others had primary radiation treatment. Three of the cases are recent; in the remainder the patients have been observed for periods varying from one to fifteen years. There were two failures. One patient after receiving 1,200*r* without improvement refused further treatment. In the other case, that of a tumour in the maxilla, great improvement occurred after 2,100*r*, but a recurrence took place. Two metaphyseal tumours proved very difficult to treat successfully, but both cases were eventually classed among the cures, although one of the patients had to be submitted finally to surgical excision and graft. Of 26 tumours, 21 or 80% occurred in patients who are regarded as cured, the majority of them for more than five years. In the metaphyseal tumours cure is difficult to effect by any method, and if they are discarded from the series one finds that in 20 out of 23 epiphyseal tumours cure was effected. Of the three failures two were immediately evident as failures, but in the third case recurrence appeared ten years after apparent complete cure. To this interesting case must be added two others seen by the authors outside of their own clinic, in both of which recurrence took place after apparent cure for six years. These observations underline the necessity for thorough and prolonged follow-up of all patients treated for such tumours, in order that late recurrences may not darken the optimism which permits radiotherapy to claim a cure rate of 80% in myeloid tumours by radiotherapeutic means alone.

ARTHUR E. BROWN.

CANCER OF THE ANUS.

J. Rachet and M. Rey: "*Le traitement du cancer de l'anus*", *Revue de chirurgie*, Volume lxv, 1946, page 257.

THE treatment of anal cancer has passed through two stages. In the first, when it was not differentiated from cancer of the rectum and its radiosensitivity was unknown, the treatment was purely surgical. Later, particularly in France, it became entirely radiotherapeutic: so much so that no recent statistics on the surgical method are available in French. Struck by the very distressing painful nature of the later progress of patients following irradiation, Rachet raised the question at a meeting of the Society for Gastro-Enterology. Radiotherapists defended their point of view with quotations from their own figures. No surgeon spoke.

Cancer of the anus affects an area which possesses very special characteristics. Physiologically the anal sphincter is of prime importance, while histologically the squamous nature of the epithelium involved renders it specially susceptible to radiation therapy. Three factors arise in the selection of a method of attack. There is first the proportion of permanent cures by either method, second the possibility of conserving the sphincter function, and thirdly the price the patient has to pay in pain and inconvenience for his cure or for his treatment.

On the surgical side, most series are vitiated by failure to distinguish between primary carcinomata of the anal epithelium and secondary invasion of the anal canal by a rectal growth. The only pure series available is that of Cattel and Williams, of the Lahey Clinic. Among 600 ano-rectal tumours there occurred 10 primary carcinomata

of the anus, of which nine were submitted to operation. Five of the patients remained "cured" over periods from fifteen months to ten years. These figures are compared by the authors quoting them with those published by Bensaude of 20 cases in which various forms of local radium application were used and in which six patients remained healthy for from one to ten years. The series of Buie and Buist is also cited, in which five patients out of eleven irradiated were cured for a period of up to five years. In results the American authors consider the two methods about equal, but they too direct attention to the painful sequelæ of irradiation. They decide definitely on surgery as the method of choice in operable tumours, advocating a thorough abdomino-perineal resection of the rectum and anus, followed by removal of the inguinal glands. They stress the rarity of abdominal lymphatic involvement, but consider a thorough inguinal clean-up essential; their experience in this agreeing with that of Keyes, who found the inguinal glands involved in four of his 27 cases.

The article leaves one with the impression that in America, as in France, the choice of method is not finally decided, both methods having ardent advocates. Surgical treatment has two disadvantages. It involves a very extensive resection with a mortality of some 7%; and it leaves the patient of necessity with an artificial anus. On the other hand, the amount of suffering following surgical removal is infinitely less than after radiation.

In regard to radiotherapy, Roux-Berger and Ennuyer recently presented a precise and detailed study of 51 patients treated at the Curie Foundation between 1921 and 1940. These authors base their preference for irradiation on the results they have obtained, particularly in respect to the possibility of leaving the patient with a normally functioning intestinal outlet. Of their 51 patients, 18 (35%) remained free from recurrence five years later. Of these, three had complete anal stenosis and artificial anus; three had partial stenosis, one of them having an artificial anus; one had a mild degree of stenosis, but an artificial anus; while 11 retained supple sphincters functioning normally. That 60% of the cured patients should enjoy a perfectly normal sphincter action appears surprising in view of the recognized difficulty of destroying cancer cells without destroying the closely subjacent sphincteric muscle fibres; but a closer study of the series shows that the great majority of these patients had small, early, localized growths, which in no case involved the whole circumference of the anus. In most of the 33 cases in this series which are written down as failures, there was some upward or lateral extension of the growth. The fact remains, however, that of 14 patients with anal cancer, diagnosed early and well localized, nine were cured. These authors consider involvement of the inguinal glands as rare. Should the glands be palpably enlarged they should be removed by surgical excision.

Rachet and Rey do not feel themselves competent to discuss the techniques and dosages of radium therapy. Radiotherapists themselves disagree on this point. Roux-Berger and Ennuyer state that for the 51 patients in their series 17 different methods of irradiation were used, including radium puncture, anal sounds, various moulds, teleradium therapy, and X rays. The last two appear to take precedence in choice, as affecting the sphincter less. Since 1940, when their 500,000-volt apparatus was installed, this method has been regularly used at the Curie Foundation. Wallon remains faithful to the radium needle, by which means he has cured all the four patients he has treated, preserving a normal anal function in two of them. "Contact" application has not been much used for this condition. Chaoul does not report any cases of anal carcinoma. Lamarque and Gros have, however, been using "contact" application during the last two years for carcinoma of the rectum. Its efficacy in these cases seems doubtful on theoretical grounds, since the principle that only tissues in close contact with the source of radiation receive a significant dosage would seem to limit its effectiveness in dealing with deep extensions and especially with glandular invasions. Contact therapy at least, however, has the advantage that if it fails the field is not so entirely spoiled for subsequent surgery as it is after other methods of irradiation.

There is no doubt of the efficacy of irradiation therapy, and it alone can offer the patient any chance of retaining a normal anal action. But the undesirable sequelæ are many. Roux-Berger and Ennuyer state that: "It is quite certain that in many cases the patients must go through great and prolonged suffering." Laborde writes: "Radium would be an excellent means of treatment were it not so often followed by unforeseen reactions." One would not cavil at a simple anal stenosis, which one could regard as the price paid for the cure of the cancer. But too often after radiation therapy the unfortunate patient is left in a condition which renders life a misery, and for which no measures which one can suggest can bring relief. Among such undesirable effects are: persistent muco-hæmorrhagic proctitis with tenesmus; periodical separation of necrotic tissue, slow but atrociously painful; wide ulceration with sanious discharge and sclerotic base and a general appearance of sloughing, often accompanied by perforation of the recto-vaginal septum; pains of a "fissure-in-ano" type, in which the sclerotic condition of the tissues renders surgical relief impossible; intense neuritic type of pains radiating to the iliac fossæ and the lower limbs; late outbreaks

of infection. These can be so bad that in one of Rachet's patients the proposal to carry out chordotomy was seriously considered.

Radiotherapists generally agree that these complications are due to the late recognition of the disease and to faulty technique in the sense of overdosage. Roux-Berger has proposed a line of action which at first sight has attractions. He would commence always by radiotherapy, and if it fails to bring real progress, to resort early to surgery within two or three months. The future only will tell whether this suggestion is practicable. Surgery is difficult enough after the failure of many simple irradiation procedures, and it would appear to be impossible in the face of the huge masses of sclerosed fibrotic tissue often seen. If one could say early that of the perirectal tissues there existed only bare remnants, and that the painful attacks would with certainty become worse, then the surgeons could act early. But this is just what cannot be done. And since the principle of surgery reinforced by later radiation therapy offers only an illusory hope of prophylactic security, the decision must apparently still be made between surgery and radiation.

ARTHUR E. BROWN.

ULTRA-VIOLET LIGHT AND POST-OPERATIVE THROMBOPHLEBITIS.

F. Condamin: "*De la prevention des phlebites et embolies postoperatoires par l'irradiation aux R.U.V. des salles d'opérations*", *Lyon chirurgical*, Volume xli, 1946, page 590.

CONDAMIN presented before the *Société de chirurgie de Lyon* an interesting statement of his own experiences with post-operative thrombosis and embolism. He stated that for fifteen years he had been accustomed to operate in two theatres. One was at the Villefranche Hospital, the other at a private clinic. The theatre in the latter place had been built to modern designs in 1934, while that at the hospital was much older. For the first few years there was very little post-operative trouble at the clinic. Then following an outbreak of influenza there started to occur cases of thrombosis and embolism, and these continued with gradually increasing frequency until their incidence became alarming. Every sort of precaution was taken to disinfect the theatre, and the technique was varied in different ways, one of which was the adoption of early post-operative rising, but no diminution of the incidence of thrombosis and embolism was achieved by any of the means tried.

During the same years at the Villefranche Hospital, where work was done among the same type of cases, with identical organization and technique, though in more crowded conditions, phlebitis and embolism were met with at most about once in two years—approximately one case in each 1,000 or 1,500 operations. In the private clinic at the same time the percentage of thrombotic complications reached the "fantastic figure" of 20% to 25%, and the question was seriously considered of closing the clinic for surgery altogether.

After considerable thought it occurred to Condamin that there was only one factor in which the two theatres differed, which was that in the clinic theatre artificial light was used throughout, while in the hospital the old-fashioned daylight supply, with its large window space, was retained. He therefore tried the experiment of irradiating the atmosphere of the clinic theatre with ultra-violet light on the evening before an operating session and again before the session actually commenced. In the eight months that followed on the institution of this routine no single case of thrombosis occurred at the clinic. Then, during Condamin's holidays the precaution was neglected, and in those three weeks there occurred one case of bilateral thrombosis and one of embolism. Condamin deduces from these happenings that in those theatres in which the older style of wide window spaces has been supplanted by artificial lighting, ultra-violet light irradiation should be recognized as a valuable prophylactic measure against thrombosis following operations.

The subject of post-operative thrombosis and embolism is a very live one at present. The results of a clinical experiment such as that carried out by Condamin would seem to demand experimental confirmation or disproval.

ARTHUR E. BROWN.

LEUCOPENIA.

E. Witzig: "*A propos de l'augmentation du numbre des leucopénies*", *Revue de chirurgie*, Volume lxv, 1946, page 201.

AN increase in the number of patients met with whose leucocyte count is lower than normal has been reported in recent years by several authors, and a survey of the subject was undertaken in Geneva by Witzig. The material for the survey consisted of the complete series of patients admitted for all causes to the surgical clinic of the Cantonal Hospital of Geneva between the years 1936 and 1945. The normal number of leucocytes is accepted as ranging between 5,000 and 7,000 per cubic millimetre. It is common knowledge that this number rises according to various physiological

circumstances; but for the total to fall below the standard number is much less common and is much more significant. Therefore, a leucocyte count of less than 5,000 is taken as indicating leucopenia, and a count of less than 4,000 is regarded as being a leucopenia of serious import.

The results of the survey show that the increase in the incidence of leucopenia is in fact a real phenomenon. Before the war leucopenia occurred in approximately 32 to 81 cases per year, but from 1938 to 1945 the incidence followed a progressively ascending curve reaching a total of more than 350 cases a year. Expressed as the percentage of leucopenic cases among all those examined it is seen that whereas in the pre-war years it was less than 4%, it is now more than 10%. If only the more serious cases, those showing fewer than 4,000 leucocytes per cubic millimetre, are considered, the percentage has risen from 1% to more than 4%. The ratio between the milder and the more serious grades of leucopenia has not shown any very striking change, but there is apparent a tendency for the proportion of the more serious types to increase in recent years. Study of the annual curves makes it quite clear that the increase in leucopenic subjects has occurred entirely during the war years, and speculation as to its cause, though admittedly only speculation, leads to the consideration of several factors.

The first of these is the matter of nutrition, particularly with regard to a shortage of protein foods which might well be expected to lessen leucocyte formation, and this is the explanation generally favoured by most people. Other factors are the uncontrolled use and abuse of sulphonamide drugs (without consideration of the occasional dramatic case of agranulocytosis produced by them); the general substitution of benzol for benzine in industry, and the much more widespread use of X rays, with correspondingly increased risk of exposure. Other well-known sources of origin of leucopenia are infectious mononucleosis in its later stages and local foci of infection in the body, but these have not so far as is known increased greatly during the war years.

Apart from these better known possibilities, a number of workers are cited as making very varied suggestions as to the possible origin of leucopenia. The taking of an exclusively milk diet, the injection of peptones, intramuscular injections of aolan, muscular action, light baths, and even changes in the weather, have all been credited with the power of diminishing leucocyte formation. Neither these nor the various ingenious experimental methods which have been evolved, do anything to clarify the problem of why there should have been so marked an increase in leucopenia during the war years.

In Witzig's opinion the circumstances in which the increase has occurred point strongly to malnutrition as a major cause, and he expresses the hope that with a return to more normal feeding together with better control of the use of sulphonamides and such drugs, the number of people in whom mild or menacing degrees of leucopenia are detectable will again diminish. From the point of view of the power of resistance to infection this eventuality is to be hoped for.

ARTHUR E. BROWN.

SURGICAL METHODS IN THE MANAGEMENT OF TUBERCULOSIS OF THE SACRO-ILIAC SYNCHONDROSIS.

Andre Richard and L. Allard: "*Traitement de la sacro-coxalgie*", *Journal international de chirurgie*, Volume vi, 1946, page 100.

THE methods adopted and recommended by Richard and Allard are based on the principles of securing early general and medical treatment suitable for tuberculous patients, early surgical treatment aiming at immobilization of the synchondrosis, early recognition of intrapelvic abscess formation, and proper treatment of such abscesses, particularly if they are infected. The procedures practised by these authors consist of immobilization operations either by bone pegs, or by extraarticular grafts, or if deep intrapelvic abscesses are present, by a sufficient exposure from the back to ensure their proper drainage and healing.

In early cases, in which the infection is limited to the lower portion of the synchondrosis, the problem is a simple one and is easily and safely solved by driving a bone peg between the two bone surfaces without entering any infected territory. When, however, the infection is more general and abscess formation has occurred, an extaarticular arthrodesis is performed by bone grafts suitably placed. The authors disapprove of those operations which make the grafts include both ilia as well as the sacrum, holding it to be wrong to immobilize any but the joint involved. They have had no personal experience of the attractive procedure devised by Le Fort and Ingelrans, who detached the whole large mass of the posterior iliac spines and swung it round so that its posterior border became its inferior, fixing it so across the sacrum and ilium lateral to the posterior sacral foramina. This operation seems very well conceived and has given its originators very good results.

The technique of arthrodesis by pegging described has been used regularly for fifteen years with occasional modifications. The incision is a curved one, of large radius, convex posteriorly and medially to enclose the posterior portion of the iliac crest and the posterior iliac spines. The crest is exposed and its muscles are stripped off cleanly so as to turn back with them the gluteal vessels and nerves. The lower part of the iliac ala is approached with great care, partly so as to avoid damage to the gluteal vessels and nerves as they emerge from the great sciatic notch, but also to avoid the danger of opening unexpectedly into an extension of a possible pelvic abscess. The standard spot for the insertion of the peg has been selected after considerable study. It lies 4·0 centimetres from the summit of the posterior superior iliac spine and 3·0 centimetres from the external edge of the iliac crest. The peg can safely be laid within a circle of 3·0 centimetres from this centre, its path being prepared by a drill driven in from 4·5 to 5·5 centimetres (according to the size of the patient) perpendicularly to the surface of the ilium. The peg used is a stout quadrilateral segment of the internal surface of the tibia and should be of slightly larger diameter than that of the drill. It should be about 5·0 to 6·0 centimetres long, 1·5 centimetres wide at its base, and 8·0 to 10·0 millimetres wide at its apex. It should include the whole thickness of the cortex, but need not include periosteum. It is taken from the tibia as the first step in the operation and is driven in by a punch, for which purpose the authors have devised a special type. The wound is closed without drainage and no plaster supporting apparatus is applied. The patient remains recumbent for ten to twelve weeks if there is no abscess; if there is, long enough for it to subside and disappear. Forty-nine such operations have been performed by the authors without accident and with uniformly satisfactory results. Later, radiographic study of the graft shows that, at first dense, it later rarefies, and finally assumes the density of normal bone.

Extraarticular arthrodesis with two grafts is the procedure used when the joint surface is too far disorganized for the simple pegging operation. The bony supporting structures are the posterior iliac spine massifs and the delicate sacral spines. The incision is different from that previously described, since the sacral spines also must be exposed in this operation. It starts a little above the posterior third of the iliac crest and sweeps in a curve across the midline of the body a little above the sacral crest, then turning downwards a finger's breadth from the crest on the sound side. The skin flap is reflected downwards and outwards, the posterior surface of the ilium and the sacral spines being cleared of muscles, but the supraspinous ligament being retained. Two holes are then drilled through the iliac spine mass, one directed towards the crest and the other towards the second sacral spine. They penetrate the lumbar muscles and bore through the sacral spines. Two previously prepared tibial grafts are driven through these canals to unite the two bony points, and the wound is closed, after-treatment being the same as in the pegging operation.

Sacro-iliac resection for draining infected cavities is considered. Tuberculous abscess cavities originating in the sacro-iliac joint become infected early, either by fistula to the body surface or by lymphatic spread from the pelvic viscera. Less commonly intrapelvic abscesses may burst directly into the rectum or sigmoid colon. The condition thus originated is a serious one. It is essential in planning its treatment that the route chosen should offer effective drainage without the sacrifice of so much bony structure as to prejudice future healing. The authors use a curved incision enclosing the posterior fourth of the iliac crest and, at two fingers' breadth distance, the posterior iliac spines. The external surface of the ilium is stripped clear from the crest to the sciatic notch. The whole mass of the posterior spines is removed by chisel, the whole outer table of bone being included. The iliac crest must be itself stripped of muscle, and the upper attachments of the sacro-iliac ligaments cleared from the anterior surface of the bone. Lower and posteriorly the upper attachment of the great sacro-sciatic ligament is cleared off it. Here the utmost care is needed in carrying all dissection very close to the bone to avoid damage to the gluteal artery.

This wide dissection exposes the auricular surface of the sacrum and fragments of cartilage or sequestra are often met with among tuberculous granulations. All diseased bone should be removed, preferably by chisel rather than by curette, and the wound is carried deeply through to the anterior surfaces of the ilium and sacrum until the anterior-lying intrapelvic abscess can be entered and evacuated. This operation in a gravely ill patient is a serious one and its results are less pleasing than are those of the various arthrodeses. Of 22 such operations, 12 were followed by death in the course of some weeks or months after operation, and although it is the state of the patient rather than the technique of the operation which is mainly to blame for this, the authors suggest as a safety measure that the posterior abscess should be opened as a first-stage operation and the main intrapelvic abscess attacked only after some further time.

ARTHUR E. BROWN.

Reviews.

Urgent Surgery, Volume I. By JULIUS L. SPIVACK, M.D., LL.D.; 1946. Springfield, Illinois: Charles C. Thomas. 9¾" × 6¼", pp. 714, with 244 figures and 572 illustrations. Price: $10.0

THIS book is beautifully illustrated, is not too much of a "dictionary" of surgical technique, and does give an indication as to what the author thinks of the value of this or that technique.

Of particular interest to surgeons is the "feet on the ground" attitude of the author to such debatable questions as the treatment of bleeding peptic ulcer. He reports that bleeding occurs in 20% to 30% of all peptic ulcers, and that 5% of all persons treated for peptic ulcer die from hæmorrhage. In the majority of cases medical treatment is the therapy of choice because its mortality rate is lower than that of surgical intervention. The author points out that 90% of patients who die are over forty-five years of age, and it is in this group that preparations must be made for surgical intervention, particularly if the patient shows symptoms of arteriosclerosis or hypertension, when there is little tendency for the bleeding to stop. With the Meulengracht régime, published reports show an average mortality of 1·7%. When surgical treatment is planned, the procedure to be used on the properly prepared patient varies with the position of the ulcer. If the patient with a gastric ulcer is in good condition, a subtotal gastrectomy is advisable; if his condition is not so good, excision or infolding and oversewing of the ulcer is suggested. In duodenal ulcer oversewing or cauterization of the ulcer followed by subtotal gastrectomy is recommended, or if the patient's condition does not allow this, oversewing of the ulcer and posterior gastro-enterostomy.

The mortality due to the bleeding from a duodenal ulcer is much higher than that from gastric ulcer, and hæmorrhage from a chronic ulcer is more often fatal than from an acute ulcer. The surgical mortality rate of patients operated on depends on whether the operation is done early or late, as it is estimated that almost 75% of the deaths occur after the first hæmorrhage.

Of acute cholecystitis it is stated that there is, in all cases, acute obstruction of the cystic duct, even if in the excised specimen neither stone nor spasm is found. Because perforation of the gall-bladder during an attack is as frequent as in acute appendicitis, and because in perforated cholecystitis "localization" does not occur as frequently as with perforation in appendicitis, watchful waiting is not a good method of treatment of acute cholecystitis. The author does not advise operating, however, before twenty-four or thirty-six hours have passed, because of shock. He advises cholecystectomy, not cholecystostomy; he favours the costal incision, and uses electrocoagulation to obliterate the mucosa of the open gall-bladder.

Volume I of this book leaves the reader with pleasurable anticipation of the publication of Volume II.

A Manual of Tomography. By M. WEINBREN, B.Sc. (S.A.), M.R.C.S. (England), L.R.C.P. (London), F.O.R. (London), D.M.R.E. (Cambridge); 1946. London: H. K. Lewis and Company, Limited. 10" × 7¼", pp. 277, with 397 illustrations. Price: 45s. net.

THE issue of an illustrated manual of the science of tomography is a welcome event for radiologists and others interested in special methods of X-ray diagnosis. The "roentgenographic projection of plane sections of solid objects" (Andrews) is attained by moving the coupled tube and film carrier in complementary arcs or horizontal planes above and below the patient. The coupling system rotates about an axis which lies in the plane of the section intended to be presented in detail on the film. Images of all structures, anterior and posterior to this section, 0·5 to 1·0 centimetre deep, are obliterated by the movements of the tube and film. Dr. Weinbren has presented the case for tomography convincingly and with good effect in his letterpress and reproductions of comparative routine and tomographic films. The danger is that in the hands of medical practitioners other than radiologists this manual may create an embarrassing demand for what we consider to be redundant examinations by tomography. The value of tomographic films in thoracic and bone conditions particularly is uncontested. The amazing wealth of information gained from tomograms enables the physicians and surgeons to determine tactics in their approach to the problems of active treatment. It is to be hoped that over-enthusiasm in requests for tomographic cholecystograms and pyelograms may not result from perusal of this manual. The text clearly explains the clinical background and intrinsic features of the reproductions of films: as a minor criticism the meaningless term "double pathology" is deplored. Dr. Weinbren will inspire radiologists who

control tomographic apparatus; he should stimulate hospital medical staffs to press for suitable units in their X-ray departments, and he may convince interested general practitioners of the value of tomography. The general set-up of the book is excellent. The paper, the print, the illustrations and the index are first class.

An Introduction to Clinical Surgery: Surgical Wherefores and Therefores, A Reasoned Explanation of Surgical Note Taking. By CHARLES F. M. SAINT, C.B.E., M.D., M.S., F.R.C.S. (Eng.), F.R.A.C.S.; 1945. Capetown: The African Bookman. 8½″ × 5½″, pp. 293. Price: 25s.

PROFESSOR SAINT has achieved his object in producing an excellent introduction to the study of clinical surgery. The book is based on the tutorials which are given annually to students commencing their hospital work, and it covers the field in a most comprehensive fashion.

The earlier chapters are concerned with note-taking, inflammation, tumours and abdominal emergencies. The later chapters deal with the clinical examination of various systems and common surgical diseases. Many clinical teachers of great experience believe that the tutorials delivered to new students are the most difficult part of their hospital teaching. Clinicians engaged in this most important task would be well advised to take as a guide the author's great wealth of clinical experience and teaching as embodied in this book. This is a most useful publication and is strongly recommended to both undergraduate and post-graduate alike.

Atlas of Histopathology of the Skin. By G. H. PERCIVAL, M.D., Ph.D., F.R.C.P.E., D.P.H., A. MURRAY DRENNAN, M.D., F.R.C.P.E., F.R.S.E., T. C. DODS, F.I.M.L.T., F.I.B.T., F.R.P.S.; 1947. Edinburgh: E. and S. Livingstone, Limited. 10″ × 6″, pp. 502, with 376 photomicrographs in colour. Price: 75s. net.

THE foundation of the first chair of dermatology in Great Britain was due to the generosity of Sir Robert McVitie; the production of a superb "Atlas of Histopathology of the Skin" is one of the first benefits given to the medical world by the occupant of that chair, G. H. Percival. He has been aided in its production by the professor of pathology in the University of Glasgow, Professor A. Murray Drennan, and in the technical work of producing the illustrations by Mr. T. C. Dods.

Following a short description of the normal skin are 21 coloured photomicrographs with adequate descriptions of the histological appearances beneath each. This method is followed throughout the book—a short description of the disease followed by photomicrographs with detailed descriptions of the histological features.

Essentially a book for post-graduates, it is nevertheless a valuable reference book for undergraduates, as well as for the pathologist who is only occasionally called upon to report on microscopic appearances of skin lesions.

The book is magnificently produced and the colours of the stains in the photomicrographs are reproduced perfectly. The book should be in the possession of all medical libraries and its authors are to be congratulated on the wisdom of its conception and on their skill in its production.

The Pathology of Traumatic Injury. By JAMES V. WILSON, M.D., M.R.C.P. (London); 1946. Edinburgh: E. and S. Livingstone, Limited. 9¾″ × 6½″, pp. 203, with 61 illustrations (several in colour). Price: 20s. (sterling) net.

IN the preface the author points out that ere long a world may exist in which infection is largely controlled and, in part at any rate, eliminated. As regards trauma the trend is in the opposite direction. He also states that though many works have appeared on the diagnosis and treatment of injury to the human body, few have been devoted to the essential of all successful medicine, the pathology of the lesion in question. The author has succeeded admirably in filling the gap.

One glance at the page on which the eleven chapters of the book are enumerated is a challenge to any surgeon, traumatic or otherwise, to read and learn or at least to refresh his memory. It is true that some of the subjects dealt with have been widely discussed in the last few years, such as the pathology of shock and burns; on the other hand, the pathology of the crush injury, of fat embolism, of blast injury and of wounds and wound infection is nothing like so well known.

The author writes with authority because he has obviously had access to a study of the clinical aspects of the condition as well as to the biochemical, physiological, bacteriological and pathological aspects. There is no need to suspect that, because a wide range of pathology has been covered in 200 pages, the subjects have been sketchily

dealt with. The first six chapters of the book are excellent and may be read with profit, interest and the knowledge that there is a bibliography at the end of each chapter that will suffice for any post-graduate study.

The author has traversed admirably the problems associated with an understanding of the pathology of shock and burns. Some may be surprised that he rather ranges himself on the side of those who postulate a specific toxin in burns; but they will be much more interested in the emphasis directed to the importance of the negative nitrogen balance, which is so pronounced not only in cases of burns, but in all severe trauma.

The chapter on fat embolism revives a subject which is a frequent topic of discussion in times of war and rather slips into oblivion in peace. Chapters VII to XI deal with the effects of trauma on the various systems and anatomical areas—for example, central nervous system, bones and joints, chest *et cetera*. These chapters are not so exhaustive as those on the more general subjects in Part I; little, however, is missed and the reader will find in the chapter dealing with the central nervous system a full account of the modern conception of the causation of cerebral laceration and the sites of maximum incidence and severity. The book fills a real gap in the subject of surgical pathology.

A Synopsis of Surgical Anatomy. By ALEXANDER LEE MCGREGOR, M.Ch. (Edin.), F.R.C.S. (England); Sixth Edition; 1946. Bristol: John Wright and Sons, Limited. 7½″ × 4¾″, pp. 726, with 699 figures. Price: 25s. net.

THE popularity of this book is reflected in the fact that it has now reached its sixth edition. It is, of course, a book for students and not, we believe, for the aspiring surgeon. Its pages are packed with valuable information of the normal and the abnormal in anatomy; in addition there are short journeys into pathology and, at times, clinical findings in pathological conditions. Many of the illustrations are schematic only and others are semi-diagrammatic.

It is only natural that a critic could find fault somewhere in regard to embryology, anatomy, pathology or clinical signs, according to his particular interest, if he searched hard enough. While we are all anxious that the student should be accurately informed, we are sure that any doubtful facts which he absorbs from this book will be more than compensated for by an appreciation of its sound principles. Such dogmatism as is necessary to cover the ground surveyed is probably not advisable for the post-graduate and certainly not for the young surgeon.

The book should find a place in the library of the senior student as a valuable small encyclopædia for reference.

The Diagnosis of the Acute Abdomen in Rhyme. By ZETA, with drawings by PETER COLLINGWOOD; 1947. London: H. K. Lewis and Company, Limited. 7¼″ × 4¼″, pp. 96. Price: 5s. 6d. (sterling) net.

AFTER reading this entertaining book one is tempted to try to review it in rhyme. The book is dedicated to students (in rhyme of course) and is illustrated by Peter Collingwood with line drawings. The subjects dealt with include all the abdominal emergencies calling for operation. The signs and symptoms and diagnosis are set out in rhyme.

The surgery is above reproach, although the metre sometimes falters. In his preface the author writes:

> Of course I do not claim to be a poet
> And at the outset I would have you know it.

Nevertheless for the most part the verses are easy to read and full of wisdom, and the illustrations most apt.

Students cannot fail to learn much from this little book and, we feel, cannot help but remember much of what they learn from the rhymes and from the illustrations. We earnestly recommend all students to possess a copy.

Proceedings of the Royal Australasian College of Surgeons.

ANNUAL GENERAL MEETING.

THE twentieth annual general meeting of the Royal Australasian College of Surgeons was held in Melbourne from June 9 to 12, 1947.

INAUGURAL MEETING.

The inaugural meeting was held in the Wilson Hall of the University of Melbourne on June 9, 1947.

President's Address.

The President, H. R. G. Poate, delivered his president's address (see page 112).

George Adlington Syme Oration.

The eleventh George Adlington Syme Oration was delivered by Sir Gordon Gordon-Taylor, K.B.E., C.B., F.R.C.S., F.R.A.C.S. (Hon.), entitled "The Debt of Surgical Science to Australasia" (see page 75).

Ceremony of Formal Admission of New Fellows.

The following were formally admitted to Fellowship of the College: Athol Frederick Quayle (Queensland); Harold George Cummine, Justin Paul Fleming, Harry Matthew John Windsor (New South Wales); Hamilton Lister Catchlove, Alfred Murray Clarke, Frederick William Connaughton, Charles Douglas Donald, Howard Hadfield Eddey, John Isaac Hayward, Reginald Smythe Hooper, John Anthony James, John Matthias Joseph Jens, James Walter Johnstone, Alexander Dougald Matheson, Leonard James Thomas Murphy, Edward Donough Ernest O'Brien, Thomas Ernest Guyatt Robertson, Kevin Patrick Rush, Lorna Verdun Sisely, John James Woodward (Victoria).

COUNCIL MEETINGS.

Admission of New Fellows.

The following Fellows were admitted by the Council at a meeting held on June 8, 1947: Harold George Cummine, Justin Paul Fleming, Harry Matthew John Windsor (New South Wales); John Anthony James, Leonard James Thomas Murphy, Thomas Ernest Guyatt Robertson, Kevin Patrick Rush, Lorna Verdun Sisely, John James Woodward (Victoria).

The following matters arising out of the Council meetings held on June 8 and 13, 1947, are published for the information of Fellows.

Election of Council.

Ten nominations were received to fill six vacancies on the Council. As a result of the ballot conducted, 2,130 votes were cast by 355 Fellows and the following six Fellows of the College were reelected to the Council: Professor F. Gordon Bell, Professor H. R. Dew, H. R. G. Poate, Sir Hugh Devine, J. Bruce Hamilton, Henry Searby.

Election of Office-Bearers.

President: Professor F. Gordon Bell.

Vice-Presidents: Victor Hurley, Professor H. R. Dew.

Censor-in-Chief: W. A. Hailes.

Honorary Treasurer: Balcombe Quick.

Appointment of State and Dominion Committees.

The following appointments were made:

New South Wales: V. M. Coppleson, B. T. Edye, J. W. S. Laidley, R. A. Money, S. L. Spencer, K. W. Starr, N. R. Wyndham.

Queensland: A. E. Lee, A. V. Meehan, J. J. Power, A. D. D. Pye, N. G. Sutton, D. M. Yeates.

South Australia: R. M. Glynn, A. F. Hobbs, L. C. E. Lindon, A. C. McEachern, B. H. Swift, L. A. Wilson.

Tasmania: F. W. Fay, B. Hiller, D. W. L. Parker.

Victoria: Robert Officer, C. H. Osborn, C. A. M. Renou, John H. Shaw, Julian Smith, junior, G. R. A. Syme, T. Osler Sayle.

Western Australia: J. P. Ainslie, F. J. Clark, L. E. Le Souef.

New Zealand: T. D. M. Stout, B. C. Rennie, G. W. Gower, J. A. Jenkins, S. L. Wilson, P. Stanley Foster.

ANNUAL REPORT OF THE COUNCIL TO FELLOWS.

The Council takes pleasure in submitting the following report to Fellows. The report contains a record of the work of the College for the past twelve months.

Meetings of the Executive Committee.

The Executive Committee has met on twenty-seven occasions. The attendances were as follows:

The Vice-President, Victor Hurley	22
The Censor-in-Chief, W. A. Hailes	25
The Honorary Treasurer, Balcombe Quick	26
Sir Hugh Devine (absent owing to illness)	12
Sir Alan Newton	19
Henry Searby (appointed February 26, 1947)	7
Julian Smith, junior	22
J. Bruce Hamilton	1
G. R. A. Syme (absent on service)	2

Meetings of the Council.

Two meetings of the Council have been held since the last annual business meeting. The attendances were as follows:

The President, H. R. G. Poate	2
The Vice-President, Victor Hurley	2
The Vice-President, F. Gordon Bell	1
The Censor-in-Chief, W. A. Hailes	2
The Honorary Treasurer, Balcombe Quick	2
E. D. Ahern (resigned January 10, 1947)	—
George Bell	2
Sir Hugh Devine	2
Professor H. R. Dew	1
J. Bruce Hamilton	2
I. B. Jose	2
I. Douglas Miller (appointed January 10, 1947)	1
Sir Alan Newton (resigned February 19, 1947)	1
Henry Searby (appointed February 26, 1947)	1

Fellows of the College.

The number of Fellows of the College at the date of this report is as follows:

Honorary Fellows		15
Overseas Fellows		14
New Zealand Fellows		127
Australian Fellows—		
New South Wales	175	
Queensland	44	
South Australia	45	
Tasmania	13	
Victoria	198	
Western Australia	27	
	—	502
		658

Deaths of Fellows.

It is with the deepest regret that the Council reports the death of a former president, the late Sir Louis Barnett, and a former member of the Council and honorary secretary and treasurer, the late A. L. Kenny. Appropriate resolutions recording appreciation of the services carried out by these two former office-bearers were passed by the Council and copies of the resolutions forwarded to the relatives in letters from the President.

In addition, the Council regrets to report the deaths of the following Fellows: Fourness Barrington, C. V. Bowker, G. A. Buchanan, F. W. D. Collier, A. J. Gibson, J. C. W. Halliday, H. S. Marsh, W. W. Martin (New South Wales); L. D. Cohen, J. McMurray Cole, J. R. de Witte Connolly, H. Hardwick-Smith, W. C. Macknight (New Zealand); R. Marshall Allan, R. C. Brown, Bryan Foster, W. R. Groves, J. J. Kelly, B. T. Zwar (Victoria). Letters of sympathy have been forwarded to their relatives.

Honours and Awards.

It is with pleasure that the Council reports the following honours and awards received by Fellows of the College:

1. *Military Honours*: C. W. B. Littlejohn, C.B.E.; A. E. Coates, O.B.E., Dispatches; B. W. Nairn, M.B.E.; N. M. Eadie, Dispatches; K. J. Fagan, Dispatches; A. F. Hobbs, Dispatches; C. H. Horsley, Dispatches; A. H. Lendon, Dispatches; L. E. Le Souef, O.B.E., Dispatches; Brooke Moore, Dispatches; F. W. Niesche, Dispatches; T. F. Rose, Dispatches; R. H. Stevens, Dispatches; Edward R. White, Dispatches.

2. *Civilian Awards*: The President, H. R. G. Poate, M.V.O.; Ashleigh O. Davy, M.V.O.; Professor B. T. Mayes, M.V.O.

Sir Alan Newton received an Honorary Fellowship of the Royal Society of Medicine.

Resignations from the Council.

It was with the greatest regret that members of the Council received and accepted the resignation of Sir Alan Newton as a member of the Council of the College. In his letter of resignation Sir Alan Newton stated that he would gladly do anything he could to help the College in the future, and he offered every good wish to the President and members of the Council in connexion with their work for the College.

In accepting Sir Alan Newton's resignation, members of the Council placed on record an expression of their deep appreciation and great gratitude for the signal services rendered to the College by him during the eighteen years in which he held office and during which his ability and talents were consistently devoted to constructive work in the building of the College, in its administration and its organization.

Members of the Council are glad to report that Sir Alan Newton agreed to accept appointment as adviser on post-graduate surgical education and they are gratified to know that they will still retain the benefit of his guidance and experience in connexion with the educational work of the College.

In addition, the resignation of E. D. Ahern was accepted by the Council with very great regret, and a resolution was passed placing on record the Council's deep debt of gratitude to E. D. Ahern for the valuable work carried out by him on behalf of the College as a member of the Council for eighteen years.

To fill the casual vacancies caused by these resignations, I. Douglas Miller and Henry Searby were appointed to the Council.

"The Australian and New Zealand Journal of Surgery."

In order to assist Sir Hugh Devine in the administration of THE AUSTRALIAN AND NEW ZEALAND JOURNAL OF SURGERY, Henry Searby has been appointed vice-chairman of the Editorial Committee. It is proposed to reorganize the Editorial Committee and additional appointments will be made.

Although the journal is still not appearing promptly on each publication date, the delay in publication is gradually being reduced and it is hoped that the journal will soon regularly be issued at the beginning of each month of publication.

The Gordon Craig Library.

Fellows of the College and Fellows and Members of the Royal Australasian College of Physicians make full use of the library service and an increase in the number of requests received from interstate and New Zealand Fellows has been apparent during recent months. In addition, graduates attending post-graduate courses arranged by the College and the Melbourne Permanent Post-Graduate Committee freely use the library for reading purposes.

Since the date of the last report the library staff has completed the indexing of the Cowlishaw Collection, and the preparation of a catalogue for both the Gordon Craig Library and the Cowlishaw Collection is nearing completion. It is intended that a copy of this catalogue shall be forwarded to every Fellow in the near future.

Fellows are asked to assist the library staff by refraining from lending to other Fellows books which they have borrowed. All books borrowed should be returned to the library and they can then be reissued to any other Fellow or Fellows requiring them.

The Council desires to record its gratitude to the following donors of books and material to the Gordon Craig Library: Royal College of Surgeons of England, British Medical Association (New South Wales Branch), Walter and Eliza Hall Institute, University of Melbourne, University of Sydney, Professor G. Grey Turner, Sir Holburt Waring, the late Dr. S. O. Cowen, Victor Hurley, Sir Hugh Devine, Sir Alan Newton, Robert Fowler, W. E. A. Hughes-Jones, Henry Searby, G. H. Hogg, E. S. J. King, T. King, A. H. Joyce, D. Lawson, C. W. B. Littlejohn, G. A. D. McArthur, C. H. Osborn, Dr. J. H. Sleeman, R. Kaye Scott, Dr. J. Parkinson, J. T. Tait, Mr. W. C. Wilson, Mr. A. E. Perritt, Royal Prince Alfred Hospital senior students, W. R. Warner and Company, Proprietary, Limited.

Members of the staff desire to record their gratitude to a number of Fellows of the College who willingly advise and assist in connexion with the work.

Fellows are advised that a number of journals which were received prior to the outbreak of war, but which were not available during the period of the war, are once again being received. This applies particularly to journals published in Europe. An endeavour is being made to obtain all foreign journals previously received, and also to obtain the numbers which did not arrive during recent years. A number of new journals are also now being obtained either by exchange or purchase, and the new catalogue will provide full details of the literature available at the library.

Gordon Craig Scholarships.

Since the last annual business meeting the second and third awards of Gordon Craig Scholarships have been made. For these two awards 75 applications were received and the following scholarships were awarded:

(*a*) Travelling scholarships valued at £400 sterling—

1. *New Zealand*: K. N. McNamara, J. W. S. Macky	2
2. *New South Wales*: D. L. Dey, J. L. Dowling, Ian Monk, H. D. Moore	4
3. *Victoria*: G. S. Christie, D. B. Duffy, J. S. Guest, R. F. Lowe	4
	10

(*b*) Scholarships for work in Australia, valued at £400 Australian—

1. *New South Wales*: E. W. Gibson, V. S. Howarth, W. J. Pullen, A. E. McK. Reddel, Margery Scott-Young	5
2. *Victoria*: G. L. Grove, G. S. Gunter, T. E. G. Robertson	3
	8

Visit by Sir Gordon Gordon-Taylor.

The College is privileged in having Sir Gordon Gordon-Taylor with us on the occasion of the twentieth annual general meeting in which he is participating. In addition, Sir Gordon consented to conduct, in conjunction with Sir Alan Newton, Sir Hugh Devine and Balcombe Quick, a course in post-graduate surgery at Prince Henry's Hospital. The course, which included operative demonstrations and ward rounds, was of four weeks' duration and concluded on June 3, 1947.

Post-Graduate Courses in Surgery.

The College has continued its policy of developing Prince Henry's Hospital, Melbourne, as a post-graduate teaching hospital, and post-graduate courses in surgery continue to be conducted at the hospital at half-yearly intervals. Each course is of thirteen weeks' duration and includes sessions at the pathology department, University of Melbourne, and at the Royal Melbourne, Alfred, Saint Vincent's and Children's Hospitals, in addition to the lectures conducted at Prince Henry's Hospital, Melbourne. It is gratifying to know that graduates from all States and from New Zealand have attended these courses.

Commonwealth Professorship.

It is with great pleasure that the Council announces that a Commonwealth professorship has been founded as a result of the interest and efforts of the president of the Royal College of Surgeons of England, Sir Alfred Webb-Johnson, Bart., and as the result of the generosity of New Zealand donors, Mr. Arthur Sims and his family. The endowment received will yield approximately £2,000 sterling *per annum* and this

amount will enable an eminent surgeon, physician or research worker to be appointed annually to visit Australia and New Zealand and possibly other Dominions, for the purpose of delivering post-graduate lectures and carrying out other post-graduate work. Alternative appointments may also be made to enable a medical graduate from Australia or New Zealand to visit England and the other Dominions. The appointing board will consist of the presidents, for the time being, of the Royal College of Physicians of London, the Royal College of Surgeons of England, the Royal Australasian College of Physicians and the Royal Australasian College of Surgeons, with power to coopt.

A recommendation concerning the appointment of the first Commonwealth professor has been forwarded jointly from the presidents of the Royal Australasian College of Physicians and the Royal Australasian College of Surgeons. It is hoped that the first appointment will be made in 1948 and that the appointee will participate in the twenty-first annual general meeting of the College.

Primary Fellowship Examination of the Royal College of Surgeons of England.

The Primary Fellowship Examination of the Royal College of Surgeons of England was held in Australasia in January, 1947. The visiting examiners were Sir Heneage Ogilvie, Professor B. A. McSwiney and Professor G. Hadfield.

The following entries were received: Melbourne 53, Sydney 26, Dunedin 34, making a total 113. Of this number the following were successful: Melbourne 24, Sydney 11, Dunedin 16, a total of 51 passes from an entry of 113 graduates.

It was with deepest regret that news was received of the death of Professor B. A. McSwiney very shortly after his return to England. During his short visit to Australia, Professor McSwiney endeared himself to those Fellows of the College who were privileged to meet him.

Development within the Framework of the College Constitution of Sections for Fellows Practising Special Branches of Surgery.

For some considerable time, members of the Council have been of the opinion that greater provision should be made in connexion with the work of the College for those of its Fellows who are practising special branches of surgery. Members of the Council feel that Fellows practising special branches of surgery should be encouraged to take a greater part in the programmes arranged for College meetings and that, in addition, facilities should be available to them for meetings of interest to their own particular sections. Representatives of the Executive Committee of the Council have had a number of informal conversations with representative Fellows practising special branches of surgery in Victoria. It is the desire of the Council that this matter might be thoroughly discussed by Fellows at this annual business meeting, and when the report at present being read is open for discussion, Fellows are invited freely to state their views so that members of the Council might be guided in formulating College policy for the future. Members of the Council are most desirous of obtaining the opinion of all Fellows, and particularly of those Fellows most concerned—that is, those practising special branches of surgery, not only in this State, but in all States and in the Dominion of New Zealand.

One suggestion under consideration is that specialist committees might be formed within the framework of the College constitution, and that in order to permit this new articles of association might be inserted in the College constitution following Article of Association number 14, which appears on page 20 of the 1940 issue of the College Handbook.

The suggested articles about which the Council seeks an expression of opinion tonight will, if approved by the Council, read as follows:

Specialist Committees.

14a. The Council may from time to time appoint specialist committees in the various special branches of surgery. Each committee shall have its own chairman, deputy chairman and honorary secretary.

14b. The functions of such specialist committees shall be

(*a*) to promote the education of those interested in the branch of surgery concerned in accordance with the general educational policy of the College;

(*b*) to organize and conduct clinical meetings, with the consent of the Council, of interest to those practising the special branch of surgery concerned;

(*c*) to organize a section of the programme of the combined annual general meeting of the College of interest to Fellows practising the special branch of surgery concerned.

14c. All meetings organized by the specialist committees shall be open to all Fellows of the College and, similarly, all general meetings shall be open to all members of each specialty.

Amendments to the College Constitution.

At its meeting on June 8, 1947, the Council decided to invite Fellows to amend the articles of association in the following manner:

1. That Article of Association 4 be amended so that the governing body of the College shall consist of a council of fourteen (14) elected Fellows and of such other officers as are appointed by the elected members of the Council under Article 9, instead of as at present twelve (12) elected Fellows.

2. That Article of Association 14 be amended by the deletion of the words "three from the North Island, three from the South Island".

In accordance with this decision a special meeting of Fellows will, in due course, be convened, when the necessary amended articles of association will be submitted to them for their approval or otherwise.

First Archibald Watson Memorial Lecture.

Members of the Council consider that the College is under a debt of gratitude to Sir Henry Newland for his acceptance of its invitation to deliver the first Archibald Watson Memorial Lecture in Adelaide on May 1, 1947, particularly in view of the fact that as a result of his acceptance he had to forgo the honour of delivering the Joseph Bancroft Lecture in Brisbane.

Herbert Moran Memorial Lecture.

The first Herbert Moran Memorial Lecture was delivered by Professor K. Inglis at the annual meeting arranged by the New South Wales State Committee on May 14, 1947.

Gifts to the College.

During the recent visit to Australia of one of the distinguished Fellows of the College, Sir Thomas Dunhill, it was learned that his portrait, the gift of which was previously reported by Sir Alan Newton, will be received in Australia at an early date. The Council desires to place on record its gratitude to Sir Thomas Dunhill for this gift.

In addition, the Council records its gratitude to Sir Alan and Lady Newton for the gift of an inkstand to the College. The inkstand had been presented to Sir Alan and Lady Newton by T. Pridgin Teale, Esq., F.R.S.

State and Dominion Committees.

Since the date of the last annual business meeting the following meetings arranged by State and Dominion committees have been held:

New South Wales:	Sydney, May 14, 1947.
New Zealand:	Wellington, August 29 and 30, 1946; May 29 and 30, 1947.
Queensland:	Brisbane, June 25 and 26, 1946.
South Australia:	Adelaide, September 11, November 13, 1946, and March 12, 1947.
Tasmania:	Hobart, August 16 and 17, 1946.
Victoria:	Melbourne, August 16 and 17, 1946, March 28, 1947.
Western Australia:	Perth, April 21 to 25, 1947.

Balance Sheets and Accounts.

Copies of the balance sheets have been handed to all Fellows present at this meeting. Detailed accounts are available at the meeting for inspection by Fellows, and any information which Fellows might desire concerning the accounts will be supplied on request.

During the financial year ended January 31, 1947, some items of expenditure have increased, and these increases are due in general to the resumption and increase in College activities, particularly the conduct of post-graduate courses, the resumption of examinations, the award of Gordon Craig scholarships, and the resumption of annual general meetings *et cetera*.

In view of the low interest rate at present ruling and in an endeavour both to maintain College income from investments and to spread the risks, the Council has approved of a policy of investment in a limited number of sound proved industrial stocks. As opportunity offers and as funds are available this policy is gradually being implemented.

Annual Subscription.

It will be remembered that at the annual business meeting held in Sydney in June, 1946, a suggestion was received that consideration be given to suspending the

ROYAL AUSTRALASIAN COLLEGE OF SURGEONS.

Balance Sheet as at January 31, 1947.

LIABILITIES.	£ s. d.	£ s. d.
General Funds—		
Gift Account		1,580 16 9
Examination Expenses Reserve Account		487 7 4
Investment Fluctuation Reserve		83 13 0
Surplus Account—		
Balance at January 31, 1946	26,952 13 1	
Add Surplus Revenue for 12 months ended January 31, 1947	764 11 3	
		27,717 4 4
		29,869 1 5
The Union Bank of Australia, Limited—		
Overdraft at Melbourne £69 6 6		
Less Credit Balance at Wellington 10 7 2		
	58 19 4	
Sundry Creditors	40 15 5	
Subscriptions Paid in Advance	31 10 0	
Craig Endowment, Advance	1,000 0 0	
		1,131 4 9
		31,000 6 2
Trust Funds—		
T. F. Ryan Endowment Fund £5,100 0 0		
Michael Ryan Scholarship, Income Account 122 19 10		
J. P. Ryan Scholarship, Income Account 119 14 4		
	5,342 14 2	
Syme Memorial Endowment Fund 2,850 0 0		
Syme Memorial Endowment Income Account 324 7 9		
	3,174 7 9	
Herbert Moran Memorial Lecture Endowment Fund 1,000 0 0		
Herbert Moran Memorial Lecture Endowment Income Account 25 3 1		
	1,025 3 1	
Craig Endowment Fund, as per Separate Balance Sheet 76,142 13 10		
Less Advance to College as above 1,000 0 0		
	75,142 13 10	
		84,684 18 10
		£115,685 5 0

ASSETS.	£ s. d.	£ s. d.
Account General Funds—		
Building Erected on Leasehold Land, at Cost	13,992 5 11	
Furniture and Fittings, at Cost less Depreciation	1,705 0 0	
Great Mace, at Valuation	500 0 0	
		16,197 5 11
Cash on Hand	20 0 0	
Advances to Honorary Secretaries	204 12 3	
Sundry Debtors	1,006 19 1	
Subscriptions in Arrear	63 0 0	
		1,294 11 4
General Investments		13,508 8 11
		31,000 6 2
Account Trust Funds—		
Investments—		
T. F. Ryan Endowment	5,342 14 2	
Syme Memorial Endowment	3,174 7 9	
Herbert Moran Memorial Lecture Fund	1,025 3 1	
Craig Endowment Assets less Liability and Advance (as per Separate Balance Sheet)	75,142 13 10	
		84,684 18 10
		£115,685 5 0

Audited and found correct.
(Signed) YOUNG & OUTHWAITE,
Chartered Accountants (Australia),
368 Collins Street, Melbourne.
March 6, 1947.

(Signed) H. R. G. POATE, President.
(Signed) BALCOMBE QUICK, Hon. Treasurer.
(Signed) H. G. WHEELER, Secretary.

ROYAL AUSTRALASIAN COLLEGE OF SURGEONS.

CRAIG ENDOWMENT.

Balance Sheet as at January 31, 1947.

LIABILITIES.	£ s. d.	£ s. d.
Endowment	53,494 2 2	
Investment Fluctuation Reserve	141 12 10	
		53,635 16 0
Scholarship Fund		12,854 10 9
Surplus Account—		
Balance, January 31, 1946	8,859 7 2	
Less Transfer to Endowment	1,000 0 0	
	7,859 7 2	
Add Surplus for the 12 Months ended January 31, 1947	1,792 19 11	
		9,652 7 1
		76,142 13 10
Sundry Creditors		71 2 3
		£76,213 16 1

ASSETS.	£ s. d.	£ s. d.
Account Endowment—		
Investments	53,585 14 3	
The Bank of Australasia, Endowment Current Account	50 1 9	
		53,635 16 0
Account Scholarship Fund—		
Investments	12,430 0 0	
The Union Bank of Australia, Limited— Current Account	424 10 9	
		12,854 10 9
Account Surplus and Creditors—		
The Union Bank of Australia, Limited— Income Current Account	965 1 0	
Gordon Craig Library, at Cost	6,435 8 4	
Library Furniture, Fittings and Equipment, at Cost less Depreciation	1,323 0 0	
Royal Australasian College of Surgeons, Advance	1,000 0 0	
		9,723 9 4
		£76,213 16 1

Audited and found correct.
(Signed) YOUNG & OUTHWAITE,
Chartered Accountants (Australia),
368 Collins Street, Melbourne.

March 6, 1947.

(Signed) H. R. G. POATE, President.
(Signed) BALCOMBE QUICK, Hon. Treasurer.
(Signed) H. G. WHEELER, Secretary.

annual subscription when each Fellow of the College has paid in full a sum to be defined. A report was obtained from an actuary and after consideration of this report and after discussions which took place between the actuary and the secretary, the Council decided that it is not practicable at present to arrange for the annual subscription to be suspended on payment of a defined amount.

Regulations Governing Admission to Fellowship of the College.

Special provision has been made on the agenda paper for this meeting for the discussion of the policy of the College in regard to the training of future Fellows, with special reference to apprenticeship training and its relation to regulation 32 of the College regulations governing admission to Fellowship. Copies of these regulations have been placed before each Fellow attending this meeting.

Annual General Meeting, 1948.

The Council has decided to hold the annual general meeting for 1948 in Dunedin in January of that year. In addition to the Commonwealth professor, it is hoped that Dr. O. T. Clagett, of the surgical section of the Mayo Clinic, and Dr. L. M. Eaton, neurologist, of the Mayo Clinic, will be present at the meeting.

H. G. WHEELER, Secretary.

Books Received.

"*L'anesthésie intra-veineuse au pentothal sodium*"; by Ernest Kern; 1946. Paris: Masson *et Cie.* 7¾″ × 5¼″, pp. 94. Price: 100 Fr.

"*L'appendicite et urologie*"; by L. Strominger; 1946. Paris: Masson *et Cie.* 9½″ × 6½″, pp. 168. Price: 240 Fr.

"*Chirurgie de la main*"; by Marc Iselin; 1946. Paris: Masson *et Cie.* 10″ × 6½″, pp. 360, with 135 figures. Price: 600 Fr.

"*Le chirurgien en présence de l'état diabétique*"; by J. Brehant; 1946. Paris: Masson *et Cie.* 10″ × 6½″, pp. 544, with 44 figures. Price: 1200 Fr.

"The Results of Radium and X-Ray Therapy in Malignant Disease"; by Ralston Paterson, Margaret Tod and Marion Russell; 1946. Edinburgh: E. and S. Livingstone, Limited. 9½″ × 6″, pp. 147. Price: 7s. 6d. (sterling). This is a second statistical report from the Holt Radium Institute, Manchester, England, covering the period 1934-1938.

"Medical Disorders of the Locomotor System, including the Rheumatic Diseases"; by Ernest Fletcher, M.A., M.D. (Cantab.), M.R.C.P. (London); 1947. Edinburgh: E. and S. Livingstone, Limited. 9½″ × 6″, pp. 637, with 262 figures, some in colour. Price: 45s. (sterling) net.

"The 1946 Year Book of General Surgery"; edited by Evarts A. Graham, A.B., M.D.; 1947. Chicago: The Year Book Publishers, Incorporated. 7″ × 4½″, pp. 680, with 213 figures. Price: $3.75. This invaluable annual conforms to its usual high standard.

"*Die Hormonversorgung des Foetus*"; by Dr. Jules Samuels; 1947. Leiden, Netherlands: E. J. Brill: 9½″ × 6″, pp. 320.

"Essentials of Clinical Proctology"; by Manuel G. Spiesman, B.S., M.D.; 1946. London: William Heinemann (Medical Books), Limited. 9″ × 5¾″, pp. 238, with 59 figures. Price: 21s. (sterling) net.

"Excerpta Medica: Ophthalmology, Section XII"; edited by M. W. Woerdeman, M.D., F.R.N.A.S., A. P. H. A. de Kleyn, M.D., F.R.N.A.S., and W. P. C. Zeeman, M.D.; Volume I, Number I, May, 1947 (published monthly). Amsterdam: Excerpta Medica. 10″ × 6½″, pp. 48. Price: 75s. (sterling) per yearly volume of approximately 600 pages.

"Pye's Surgical Handicraft"; edited by Hamilton Bailey, F.R.C.S.; fifteenth edition; 1947. Bristol: John Wright and Sons, Limited. 7¼″ × 4¾″, pp. 727, with 699 figures. Price: 25s. (sterling) net.

"A Synopsis of Anæsthesia"; by J. Alfred Lee, M.R.C.S., L.R.C.P.; 1947. Bristol: John Wright and Sons, Limited. 7¼″ × 4¾″, pp. 260, with 42 illustrations. Price: 12s. 6d. (sterling) net. A most valuable reference book for the senior resident medical officer interested in anæsthesia or for the graduate preparing for examination for a diploma.

Royal Australasian College of Surgeons.

NOTICE TO EX-SERVICE GRADUATES CONCERNING ADMISSION TO FELLOWSHIP OF THE COLLEGE.

THE Council of the Royal Australasian College of Surgeons has decided that ex-service graduates who fulfil the following requirements and desire to obtain the Fellowship of the College may, on application on the prescribed form and with the approval of the Censor-in-Chief, present themselves for a special examination comparable with the type of examination adopted prior to the introduction of the new regulations in December, 1945.

Those eligible to avail themselves of this provision must (*a*) have held an approved higher surgical qualification involving a primary and final examination for a period of not less than five years, and (*b*) have been members of an active surgical unit during their service with the armed forces, and (*c*) have been prevented by active service conditions from undertaking the examination during the period of their war service.

The above provision will remain in operation until December 31, 1948; that is to say, examinations of this type will probably be held in December, 1947, June, 1948, and December, 1948.

Ex-service candidates who do not comply with the above requirements are referred to the last paragraph of regulation No. 32 and are advised to communicate with the Censor-in-Chief. Regulation No. 32 reads:

> All applicants for admission to the Final Examination shall be graduates of not less than five years of an approved medical school, university or college and, in addition, shall have—
>
> (*a*) completed the Primary Examination or been exempt therefrom by the Council;
>
> (*b*) undergone one year's training as a resident medical officer in an approved hospital;
>
> (*c*) completed a course of apprenticeship training, approved by the Censor-in-Chief, in general surgery or in one of the surgical specialties set out in regulation 33.
>
> All applicants for Fellowship in General Surgery shall have acted for a period to be determined by the Censor-in-Chief as an assistant to an approved surgeon or surgeons in the operating theatres and wards of an approved hospital, or have undergone a period of equivalent training to the satisfaction of the Censor-in-Chief.
>
> All applicants for Fellowship in approved specialties shall have, prior to the Final Examination, acted as an assistant to an approved general surgeon in the operating theatres and wards of an approved hospital for a period to be determined by the Censor-in-Chief, and shall also have acted as an assistant to an approved surgeon in that specialty for a period to be determined by the Censor-in-Chief.
>
> Any of the conditions contained in this regulation may be waived by the Censor-in-Chief, at his discretion, in the case of candidates who have returned from service with the armed forces.

It will be appreciated, however, that such candidates must, on receiving permission from the Censor-in-Chief, present themselves for the type of examination adopted in December, 1945, which involves a written and oral examination.

Those graduates who wish to avail themselves of these provisions should obtain immediately an official form of application from the Secretary of the College, complete it in detail and forward it to the Censor-in-Chief so that their qualifications may be considered.

New Zealand graduates may obtain forms of application from Mr. Eardley L. Button, of 14 Hill Street, Wellington, New Zealand.

H. G. WHEELER,
Secretary.

Royal Australasian College of Surgeons,
Spring Street, Melbourne.
24th September, 1947.